

UC-NRLF



C 2 654 881

Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

ARGENTINE-CHILIAN BOUNDARY

Argentine - Chilean Boundary



Argentine - Chilean Boundary

*Mount Fitz Roy and Fitz Roy Pass
Argentine land on the left 1882 and 1883.*

Argentine-Chilian Boundary



REPORT

NOTE: This (the First) Part contains—

INTRODUCTION AND CHAPTERS I. TO XIII.

JUSTIFY THE ARGENTINE CLAIMS FOR THE BOUNDARY
IN THE SUMMIT OF THE CORDILLERA DE
LOS ANDES, ACCORDING TO THE
TREATIES OF 1881 & 1893

*Printed in compliance with the request of the Tribunal,
dated December 21, 1899*

LONDON
PRINTED FOR THE GOVERNMENT OF THE ARGENTINE REPUBLIC
BY WILLIAM CLOWES AND SONS, LIMITED
STAMFORD STREET AND CHARING CROSS

1900

ATION
DED
TO BE
)

1 4 1992

MY LORD AND GENTLEMEN,

The Argentine Republic has always considered that, after laying before Her Britannic Majesty's Government the official documents relating to the boundary question pending with the Republic of Chile, she had to leave them in complete freedom to form their judgment by their own surveys and solve the differences submitted to them by strictly applying the Treaties.

This consideration, and others set forth in due time, induced the Argentine Republic to abstain from the detailed examination of the lines projected by the Experts of both countries, when the Foreign Office enquired, for the information of this Tribunal, whether the Argentine Government desired to supplement the documents presented on their behalf.

Nevertheless, in order to facilitate the task of the Tribunal, the antecedents which were considered indispensable, were offered to it. Later on, the offer was repeated "to make a statement in support of the claims of the Argentine Government, should the Tribunal of Arbitration desire such a statement to be made."

In reply, the Argentine Legation received the communication of May 28, 1899, in which it was informed, "that the Tribunal desired to be put in possession of all the information and all the arguments which either party may think material for its guidance." In pursuance thereof, the Argentine Republic has the honour to present the antecedents with the fulness required.

But before commencing the argument, it is necessary to point out that the terms in which the Chilean Representative has stated the controversy are not those which, in reality, apply to it.

It might apparently be surmised from those terms, that the question on

which Her Britannic Majesty's Government are requested to give a decision is a doctrinarian question—that is to say, the meaning of the Treaties in force.

However, this is not the case. Since 1881, when the boundary was solemnly agreed to, the frontier consecrated by the sovereign wish of the two countries, stands with the fixity and permanence of character which the Treaty of that date decided in its Article 6, which reads thus: "The Governments of the Argentine Republic and of Chile shall exercise full dominion and for perpetuity over the territories which respectively belong to them according to the present arrangement. Any question which might unfortunately arise between the two countries, whether it be on account of this transaction, or owing to any other cause, shall be submitted to the decision of a friendly power, the boundary established in the present arrangement *to remain at all events immovable between the two Republics.*"

That boundary, from north to south, to lat. 52° S. is constituted by the Cordillera de los Andes, upon the summit of which nature and history, geographical science and political considerations have designated the divisional line.

In all the Treaties, in all the documents, in all the official and private antecedents emanating from both countries, the same frontier is designated, and they establish that up to said frontier the respective sovereignty of the Argentine Republic and Chile reaches. In marking it out, differences might nevertheless arise between the functionaries entrusted with its tracing, and these differences—only these—are submitted to Her Britannic Majesty's Government in the Agreement of 1896: "Should differences arise between the Experts (says Article 2) when fixing, in the Cordillera de los Andes, the boundary marks south of parallel 26° 52' 45" S., and in case they could not be amicably settled by joint accord of both Governments, they shall be submitted to the decision of the Government of Her Britannic Majesty, which the contracting parties from this moment appoint in the character of Arbitrator entrusted with the strict application in such cases of the provisions of the aforesaid Treaty and Protocol, after the ground has been examined by a Commission appointed by the Arbitrator."

The differences between the Experts were confined within the Cordillera.

Outside thereof, there could be no disputed territories nor debated boundaries. Outside thereof, there only exist territories incorporated under Argentine or Chilean sovereignty, and their sovereignty is not discussed nor submitted to arbitration.

If the line of the Chilean Expert is not all found in the Cordillera—and the Argentine Expert affirms it is not all found therein—it cannot be taken into account, neither as a precedent nor as a datum. It has been submitted to Arbitration because the Chilean Government, in accordance with the declaration of their Expert, stated in the Record of September 22, 1898, that it is all situated in the Cordillera de los Andes, “as ordered by the Treaties, and in the form which they establish”; but if the error of this assertion is proved, the line must be set aside without further examination. There are no considerations which override the categorical stipulations of the conventions.

Her Britannic Majesty's Government, in consequence, have to fulfil a technical mission respecting circumscribed places. They are not going to lay down general rules applicable to the whole extent of the frontier, particularly when in the greater part thereof the divisional line is already demarcated. They are not going to lay down principles, nor consider new doctrines, which might clash with the lines already fixed on the maps and located on the ground itself. They are going solely to give their decision respecting the geographical differences of the Experts, who, according to the said Record of September 22, have been in disagreement with reference to the location of the boundary marks in the Cordillera de los Andes.

These remarks are all the more necessary in view that hereinafter will be examined the statement read by the Chilean Representative, in which a line of argument is entered upon whose relevance is rejected by the Argentine Republic. Although the scope of the agreements will be studied for the purpose of proving erroneous interpretations, the Argentine Republic does not admit any discussion with respect thereto. They will be considered in order to put before the Tribunal the veritable antecedents of the dispute in the same way as a historical question would be treated. The work of diplomacy is at an end; it belongs to the past. The work of Experts is the only one pending. The Treaties have ordered that the boundary shall run along the main chain of the Cordillera de los Andes, i.e.

along the most elevated crests that may divide the waters of the said Cordillera. This rule cannot be discussed, as the Treaties cannot be disregarded. To terminate the discussion it is only necessary to determine which of the landmarks proposed by each of the Experts harmonise with these stipulations. Her Britannic Majesty's Government will decide the Experts' differences on these points.

I. QUESTIONS SUBMITTED TO THE ARBITRATION OF HER BRITANNIC MAJESTY'S GOVERNMENT.

The Representatives of the Argentine Republic and Chile met together in Santiago on September 15, 1898, to consider the Records and antecedents relating to the general frontier line which had been submitted to them by the respective Experts.

With the purpose of facilitating the examination of, and decision on, all the points comprised in the boundary question, the Ministers agreed to deal separately with each one of its parts, to wit:

(a) That relating to the boundary in the region between parallels 23° and $26^{\circ} 52' 45''$ lat. S.

(b) That relating to the boundary from parallel $26^{\circ} 52' 45''$ to the proximity of parallel 52° lat. S.

(c) That relating to the boundary region close to parallel 52° S., which is referred to in the last clause of Article 2 of the Protocol of 1893.*

Each of these three sections of the frontier was separately studied, as different rules for their settlement were required for each one of them.

In the first, a line could not be traced which would meet with the joint approval of the Governments. In order to fix it, a Conference, consisting of five Argentine and five Chilean delegates, met in Buenos Aires. It was not possible, either, to reach a satisfactory result, and on March 11 of the present year a Record was drawn up setting forth the divergence. Shortly afterwards, an Argentine delegate, a Chilean delegate, and Mr. William H. Buchanan, then the United States Minister in Buenos Aires—constituting a demarcating

* See the Record of September 15, 1898.

commission—settled the differences and decided the line, awarding to the Argentine Republic no less than eleven-twelfths of the disputed territory in that region.

The second section, from parallel $26^{\circ} 52' 45''$ to the proximity of lat. 52° S., was studied and considered in the way set forth in the Record of September 22, 1898. On the lines of the two Experts being confronted, it was found that they both agreed in many points, and that they contained substantial differences in many others. They coincided “from Mount Tres Cruces (southern summit) to Mount Perihueico, in the points and stretches marked with Nos. 10 to 256 of the Chilian Expert’s list, and 3 to 266 of the Argentine Expert’s list; and also in the points and stretches marked with Nos. 263 to 270 of the Chilian Expert’s list, and Nos. 275 to 281 of that of the Argentine Expert, and finally in those marked with Nos. 331 and 332 by the former and 304 and 305 by the latter.”

As each Government upheld and sustained the general line presented by their respective Experts, conformity of opinion settled the frontier in the stretches just mentioned. But it was also observed “that the line of the Chilian Expert diverges from that of the Argentine Expert in the points and stretches marked by the former with Nos. 1 to 9, and 1 and 2 by the latter; in the points and stretches marked by the former with Nos. 257 to 262, and 267 to 274 by the latter; in the points and stretches marked with Nos. 271 to 330 by the former, and 282 to 303 by the latter; in the points and stretches marked with Nos. 333 to 348 by the former, and with No. 306 and the rest of the points without number that follow in the list of the latter.”

The Representatives of the two Republics found no means whatever of agreeing in their views by direct procedure, and in consequence decided to draw up a record in which the divergences would be set forth, and to deliver to Her Britannic Majesty’s Government a copy of the Records of the Experts and of the Treaties and International Agreements in force, in order that, subject to Clause 2 of the Agreement dated April 17, 1896, said Government may decide the divergences which have been recorded above. The Ministers stipulated, besides, “that the above mentioned documents shall be delivered to the Government of Her Britannic Majesty by the diplomatic Representatives of the Argentine Republic, and of the Republic of Chile accredited to said Government,

who shall manifest to same that, the case foreseen in the above quoted Base 2 of the Agreement of April 17, 1896, having arisen, they may proceed to appoint the Commission that is to verify the previous study of the ground, and resolve all the divergences together in one decision."*

The third section of the frontier relating to the region "close to parallel 52° S. which is referred to in the last clause of Article 2 of the Protocol of 1893," also left room for divergences between the Experts, which the Governments could not settle by a direct understanding. Record 4 of September 22, 1898, shows that in view of this, it was agreed to submit the question to Her Britannic Majesty's Government, "in order that, subject to Base 3 of the Agreement of April 17, 1896, said Government may decide the divergences cited, and determine the divisional line in the region above named, the ground being previously surveyed by the Commission that they will appoint to that effect."

Of the three sections of the frontier separately studied by the Governments, one of them has already been decided, another has been partly settled, and the third remains without any solution whatever.

Her Britannic Majesty's Government have been asked to decide, with strict subjection to the Treaties, the location of the line in the Cordillera de los Andes in the points and stretches of the second section in which the Experts have not agreed, and, also, to trace the frontier in the third section in which the divergence was complete.

II. THE LINE FROM PARALLEL 26° 52' 45" TO THE PROXIMITY OF PARALLEL 52° LATITUDE S.

The general rules for tracing the frontier, in this vast extension, have been agreed to in the various Treaties in force.

Their fundamental basis is designated in these words: "The boundary between the Argentine Republic and Chile, from north to south, as far as the parallel of lat. 52° S., is the Cordillera de los Andes."

* See Record of September 22, 1898.

With a view to the settlement of possible differences, the two countries arranged the method of demarcating the divisional line within the Cordillera, and it has been in his appreciation of the phrases which specify the details of the frontier that the Expert of the Chilian Republic thought he had found a means of removing the dispute from the technical aspect in which it is placed, in order to put it on a basis of theoretical doctrinarianism.

In projecting the general boundary line in the Record of August 29, 1898, he set forth, "that for the tracing of said line he had solely and exclusively followed the principle of demarcation established in Article 1 of the Treaty of 1881, a principle which must also be the invariable rule of the proceedings of the Experts, according to the Protocol of 1893; that consequently the boundary line that he proposes runs along all the highest crests of the Andes which divide the waters, and constantly separates the *springs** of the rivers which belong to either country; that the same line leaves within the territory of each of the two nations the *peaks, ridges or ranges, however elevated they may be*, which do not divide the waters of the river systems belonging to each country; that though in its most extensive and important parts the ground over which the divisional line runs has been sufficiently reconnoitred and even carefully mapped out, as has likewise been in general well established the geographical dependency of the rivers and streams which descend either side, he must nevertheless point out that the topographical location of the proposed line is wholly independent of the exactness of the maps, and that he therefore declares *that said line is no other than the natural and effective dividing line of the waters of the South American Continent*, between parallels 26° 52' 45" and 52°, which can be demarcated on the ground without effecting more topographical operations than are necessary for determining which would be the course of the waters there where they do not actually flow."†

In accordance with this interpretation the work of the Experts would be reduced to seeking on the ground the dividing line of the waters of the

* In the translation of the Minutes of the Proceedings of the Argentine and Chilian Experts, in this paragraph of Señor Barros Arana, the word "slope" has been employed, which is a correct one in every case except this one, because Señor Barros Arana attributes another meaning to it.

† See the Record of August 29, 1898.

South American Continent. The place in which a river rises should be found according to it, forcibly and necessarily, in the Cordillera de los Andes, and also "in its most elevated crests that may divide the waters."

The Expert of the Argentine Republic, in his turn, in projecting the boundary, in the Record dated September 1, 1898, stated:

1. "That the general line which he proposes to his colleague is wholly comprised within the Cordillera de los Andes.

2. "That in its entire extent it passes between the slopes which descend one side and the other of the main range.

3. "That he considers that said main range is constituted by the predominating edge of the principal and central chain of the Andes, considered such by the first geographers of the world.

4. "That this principal chain is the most elevated, the most continued, with most uniform general direction, and its flanks shed the larger volume of waters, thus presenting the conditions established, both by the Treaty of July 23, 1881, and by the Protocol of May 1, 1893, to constitute with the crest line of its slopes the general frontier line between the Argentine Republic and the Republic of Chile."*

In accordance with these ideas, consequently, the labours of the Experts had to commence by seeking, in the Cordillera de los Andes, its ideal "axis." When once the main chain had been determined, the Experts had to trace the frontier on its edge or the line of intersection of its two sides.

The Argentine Republic takes into account the chain having been always considered as the boundary, and in no way the more or less lofty peaks which rise on one side or the other, often isolated and separated from the dominating chain, nor the lateral ridges independent from the Cordillera. Chile contends that rivers can never be cut by the frontier line, no matter where they may rise, within or without the Cordillera. The Argentine Republic maintains that "parts of rivers"† may and do belong to her; that the frontier line which follows the summit of the Cordillera de los Andes necessarily cuts all the watercourses which rise outside the main chain in secondary chains, or in the "flat country of the

* See the Record, September 1, 1898.

† Protocol of 1893, Article 2.

Pampas," and which, flowing towards the West, open a passage through the defiles and gorges of the mountains.

In a vast extension of the frontier, the culminating edge of the Cordillera de los Andes—the dividing line of the waters belonging to it—coincides with the Continental divide. In that extension the chain does not give passage to the streams which rise outside of it. The Experts, therefore, had no substantial difference in those places, nor in those in which the Cordillera has its bifurcation foreseen in the Treaties.

In another part, on the contrary, the main chain presents gorges through which flow out the streams which rise in isolated hills, in lateral ridges, and even in the Patagonian plains themselves. In these cases, the Chilean Expert abandons the main chain, descends down the slopes to the valleys and to the plains, in order to carry the line along the sources of the rivers and the capricious windings of their courses. The Argentine Expert, for his part, following the dividing line of the waters in the crest of the main chain, continues this same line in the same chain, across the gorges. The Chilean Expert obeys no other rule than that of compliance with the line of the Continental water-parting. When that line is in the main chain, he follows the main chain of the Cordillera de los Andes; but where it is in secondary ridges, he follows the secondary ridges. In the same way he goes to the lowest hills, and to the gentle undulations of the plains and even to marshes, if in those hills, or in those undulations or in those marshes, the Continental water-parting line is found. The Argentine Expert took into consideration before and above everything the Cordillera de los Andes. He studied its main chain, and he demarcated the frontier line along its watershed.

Both Experts have referred to the water-parting line, but in different forms; for the Chilean Expert, the water-parting line to be accounted is that of the South American Continent, without taking into consideration whether the phenomenon takes place within the Cordillera de los Andes or not; for the Expert of the Argentine Republic, the water-parting line is nothing more than the detail which serves him as a secondary rule to designate in the main chain of the Cordillera de los Andes the topographical boundary between the two countries.

This difference in their respective points of view explains the divergences which have arisen between the Experts when arranging the landmarks, the right or wrong placing of which is to be a matter for the decision of Her Britannic Majesty's Government, when the ground has been surveyed by the technical Commission agreed upon.

It is easy to introduce confusion, in appreciating the controversy. In order to avoid doing so, it is indispensable to define ideas with the greatest clearness, even at the risk of repetitions. Otherwise, it would be possible to think that each time that *divortium aquarum* is mentioned in the Treaties, and by writers, it favours the interest of the Republic of Chile in a more or less direct manner. This, however, is not the case.

The most elementary prudence suggests the study in every case of the meaning the words were intended to convey, so that the thought of its author might not be misconstrued.

If, with this criterion, the boundary question between the Argentine Republic and Chile is examined, it will be found that all its antecedents lead to the following rules:—

1. The wall of the Cordillera de los Andes constitutes the natural and conventional frontier between the two countries, from the extreme north “to the proximities of parallel 52°.”

2. Within this Cordillera the line should be traced on a chain, and not in isolated peaks.

3. The chain to be chosen is the main one, i.e. the most elevated, the most continuous, having the most uniform general trend, and its flanks shedding the largest volume of water.

4. In the main chain thus circumscribed, the line should run along its watershed, i.e. along the edge of the intersection of its slopes.

5. The frontier line should cut all watercourses which traverse the main chain.

Only those differences which have arisen between the Experts in respect of the drawing of the dividing line through certain determined points in the Cordillera de los Andes are submitted for decision to Her Britannic Majesty's Government. The Treaties ordain that the jurisdiction of the respective

countries is divided to the East and to the West of the summit line of the Cordillera in its main chain, and it could not have been possible to consent to even the slightest modification being suggested in the immovable boundary, nor to the slightest doubt being raised in regard to the perfect right of sovereignty of the Argentine Republic over all the lands, and over all the waters, situated in the Eastern slope of the Cordillera de los Andes.

The two Governments, when stipulating the terms of Article 2 of the Agreement of April 17, 1896, confirmed once more the boundary on the summit line of the Cordillera, and reduced the possible difficulties, and consequently the cases in which Arbitration might be necessary, to simple divergences respecting the topography of the Cordillera—divergences which might arise between the views of the Experts as to the situation of the main chain which contains the traditional high-summit ridge, and the “arcifinions” boundary. The fact of an agreement having been entered into to the effect that the said divergences were only to be decided by the Arbitration, after a survey of the ground that gave rise to them, by a Commission of Technical Experts, throws still more light, if possible, upon the intention of the Governments.

Such a survey would have been totally unnecessary for studying the question in the form in which it has been placed before the Tribunal by the Representative of Chile, since the Chilean Expert himself has affirmed that the line which he proposed to the Argentine Expert is wholly independent of the exactness of the maps. If a mere principle of delimitation—viz. the orographic (that of the summit line of the Cordillera), or the hydrographic (that of the Continental divide)—should have been submitted to Arbitration, the decision could have been arrived at without any particular knowledge of the ground.

This pretension was mooted by the Chilean Expert in 1892, and repeated in 1893 and 1894, but was rejected by the two Governments by the Protocol of 1893 and the Agreement of 1896. Had Chile supported this view, the said Agreements would not have been made, nor would the Experts have carried out the work of surveying the whole general frontier line in an extension of 29 degrees of latitude before beginning to decide upon the erection of the landmarks.

The various Conventions made to remove the difficulties raised owing to the erroneous opinions of the Chilean Expert, are an evident proof that the

Arbitration agreed upon by the Treaty of 1881 did not in any manner include the general principle of the delimitation of the international frontier—a principle which was recognised as unalterable. If the two Governments had thought the contrary, the present question, such as the Chilean Representative seeks to present to the Tribunal, would have been submitted to Arbitration in 1890, for in no case would the Argentine Government have eluded the fulfilment of so solemn a stipulation, one so far-reaching in its political and economical consequences. As a matter of fact, Chile acknowledged in 1896* the necessity for a thorough knowledge of the ground, in order to settle the difficulties that form the matter for Arbitration, which is also proved by the form in which these difficulties, where produced, have been submitted to the decision of Her Britannic Majesty's Government by the Governments interested.

Nor could there be any question upon this point. This was recognised to be the case by the Minister for Chile at Buenos Aires, Señor Joaquin Walker Martinez, when proposing to the Argentine Government, on behalf of his country, on June 25, 1898, that Her Britannic Majesty's Government should be asked to send the Commission to which the Agreement of 1896 refers, in order to proceed to survey the ground where it was known that differences would arise in the next month of August, the time arranged between the Experts for drawing the general frontier line in the Cordillera de los Andes. He likewise recognised this when he proposed that the Arbitrator should be asked to deliver his decisions in the order which both Governments by mutual agreement should ask for when isolated points were to be dealt with, and that when it was a question of extensive lines, or when there existed no agreement upon the point, the North to South order should be followed.

Soon after, the idea that the only difficulties were geographical received solemn sanction in the Minute of September 22, 1898, which gave birth to the arbitral jurisdiction.

The two countries agreed to charge their respective Plenipotentiaries in London, not with the discussion of abstract principles, but merely that they should present a certain number of documents which are now in the hands of

* Agreement of April 17, Article 11.

the Tribunal, and that they should request from Her Britannic Majesty's Government the appointment of the Commission which was to survey the ground where had arisen "the differences and disagreements," which alone form the sole "divergences that have arisen," or "points of dispute," as was declared before the Chilian Congress by the Chilian Minister for Foreign Affairs, in his Report of June 1, 1899.*

III THE LINE IN THE REGION CLOSE TO PARALLEL 52° S.

The other question which Her Britannic Majesty's Government is called upon to decide can be condensed in a few words.

It was agreed, between the two countries, that, "If in the peninsular part of the South, on nearing parallel 52° S., the Cordillera should be found penetrating into the channels of the Pacific there existing, the Experts shall undertake the study of the ground in order to fix a boundary line, leaving to Chile the coast of said channels, in consideration of which study both Governments shall determine said line amicably."

The opportunity having arrived, the Argentine Expert stated that, in view of the surveys made by his assistants and of the "observations he has personally made on the ground, he declares that he has the firm conviction that in effect, the Cordillera de los Andes is found penetrating into the channels which really exist in the peninsular part of the South on nearing parallel 52°, and that the waters of those channels wash coasts of lands which do not belong to the Cordillera de los Andes, which lies to the west of said channels," and he added, "that he requires to know the opinion of the Chilian Expert on this point, so that if both agree on same they may proceed to fulfil what is ordered" in the Treaties.

The Chilian Expert said, "that, as regards the statement made by his colleague with reference to the Cordillera de los Andes penetrating into the channels of the Pacific in the vicinity of parallel 52°, he agrees with his appreciations in so far as they may apply to several elevated mountain regions of the

* Respecting Señor Joaquín Walker Martínez' proposal, see *Memoria de Relaciones Exteriores y Culto*, submitted to the National Argentine Congress in 1899, pp. 177 et seq.

Cordillera de los Andes; but not to the totality of same, because other branches of same extend over the Continent towards the North of the Estuary of Ultima Esperanza. He adds that he does not give to the expressed proposition the character of prior importance, because the survey of the ground made by the Chilian Commission to fix a divisional line leaving to Chile the *coasts of said channels*, leads him to the conclusion that the natural interior delimitation of said coasts is no other than the one of the hydrographic basin which empties into them." *

The consequence of these divergent appreciations affects in a high degree the boundary dispute. If the Cordillera de los Andes in the proximity of parallel 52° S. "is found penetrating into channels of the Pacific," such channels, and also their coasts, will belong to Chile, it being necessary to determine by the decision of the Arbitration how far such coasts extend inland. If the Cordillera does not penetrate the said channels, the boundary must be marked out in it, according to the Treaties.

IV. RULES OF INTERPRETATION.

Before considering the points contained in the pending question of frontiers, it is necessary to set forth some of the rules of interpretation which the Argentine Republic has in mind, and which support the conclusions reached by her. They are not mentioned here as admitting that the boundary dispute is in itself a doctrinal dispute, but with the view already mentioned of contesting the mistaken appreciations of the Chilian Expert which, although foreign to the dispute, have been laid before the Tribunal.

These rules have not been sought for here and there with any preconceived idea: they have been found all together, forming a mass of doctrine. They are the ones proclaimed by Her Britannic Majesty's Government, which set them forth and defended them in one of their boundary disputes in these terms:—

1. "The words of a Treaty are to be taken to be used in the sense in which they were commonly used at the time when the Treaty was entered into.

* See the Record of September 1, 1898.

2. "In interpreting any expression in a Treaty, regard must be had to the context and spirit of the whole Treaty.

3. "The interpretation should be drawn from the connection and relation of the different parts.

4. "The interpretation should be suitable to the reason of the Treaty.

5. "Treaties are to be interpreted in a favourable rather than in an odious sense.

6. "Whatever interpretation tends to change the existing state of things at the time the Treaty was made is to be ranked in the class of odious things."*

Applying these rules to the boundary dispute, in its proper sense and in its true meaning, it will be seen that the Argentine rights are so evident that it is not possible there should exist, with regard thereto, even the shadow of a doubt.

The Chilian Republic invoked, as a rule of interpretation, a paragraph of Pradier Fodéré. The Argentine Republic accepts it in every particular. These are his words: "As the interpretation of a document must aim only at the discovery of the intention of its author or authors, it is necessary to seek such intention and to interpret it accordingly, carefully examining the facts, the circumstances immediately preceding the signature of the Agreement, the Protocols, the Minutes of the proceedings and the different writings of the Negotiators; the causes which have given rise to the Treaty must be studied, taking into consideration the object which the parties had in view at the commencement of the negotiations.'

V. PLAN OF THIS STATEMENT.

The Argentine Republic offered the Tribunal in the first statement, "any information or evidence it might require," and also offered "to take into consideration the statement read by the Representative of Chile, in which some incomplete quotations have been observed."

* Papers relating to the Treaty of Washington, Berlin Arbitration, Washington, 1872, vol. 5, pp. 68-70.

It has already been said that the work of the Arbitrator is purely an Expert matter; consequently, the information and the evidence it requires is only that which may lead, from an historical and geographical aspect, to prove the characteristics which tradition and science attribute to the Cordillera de los Andes referred to in the Treaty of 1881 and in the explanatory Protocol of 1893.

Desiring to facilitate the work, it has been sought to get together all the data which permit the appreciation of the exactness and fitness of the line traced by the Argentine Expert, in accordance with the letter and spirit of the covenants which it was his mission to apply, as well as those which permit the appreciation of the inconsistency of the project formulated by the Expert of the Chilian Republic, who abandons the formidable natural barrier consecrated by the Agreements, in spite of its having been manifested by the Chilian Minister for Foreign Affairs in the name of the said Expert, in the Record of September 22, 1898, that the line is located in the Cordillera de los Andes, "as ordered by the Treaties, and in the form which they establish."

At the same time and in the proper place in every chapter will be analysed the statement read by the Chilian Representative, the purpose of which is to remove the question from the limits to which it is restricted by Article 2 of the Agreement of 1896, to make it a doctrinarian one, which the Arbitral Agreement does not admit. It is with the desire of placing before the Tribunal every antecedent that the arguments adduced in that statement will be refuted, but without admitting thereby that there is any possibility of evading the consequences which arise out of the conventions; without accepting that the dispute as to the location of the boundary marks in the Cordillera de los Andes can be transformed into a dispute on abstract principles. The boundary line along the summit of that Cordillera must "remain at all events immovable between the two Republics."* So it has been consecrated by both Nations in their solemn covenants. Eastwards of the edge of the main chain of the Cordillera de los Andes extends the Argentine Sovereignty;† and sovereignty is not under discussion, nor submitted to Arbitration.

Before proceeding to fully study the controversy, it must be stated that the

* Treaty of 1881, Article 6.

† Protocol of 1893, Article 2.

line proposed by the Chilian Expert would bring under the dominion of Chile vast regions now in possession of the Argentine Republic, where Argentine law has been in force for years, ever since they were opened up by her to civilisation.

The zones in dispute, belonging to the Argentine Republic as heiress of Spain, were in former times occupied by savage tribes, which the Argentine Republic subdued and tamed through her persevering and exclusive efforts. Having incorporated the Indian inhabitants into her own community, she founded colonies and allotted lands, creating townships at Lago Lacar, at Lago Nahuel-huapi, at Valle Nuevo, at Valle 16 de Octubre, at Carrenlenfú, at Rivers Pico and Frias, at Rio Aisen, at Lago Maravilla, etc., which have acquired comparative importance.

When the Argentine Republic's efforts have been crowned with success; when her armies and her capitals have opened up to foreign commerce the southern regions bordering on the Cordillera; when the above-mentioned settlements, governed by her laws and ruled by her authorities even before the Treaty of July 23, 1881, have become flourishing—the Chilian Expert pretends to annex to his country territories which Chile never, by public acts, helped to civilise, and in which she consented to the quiet and public Argentine occupation without protest or objection. Only at the eleventh hour, on the eve of the Expert's divergences being submitted to arbitral decision, did the Chilian Minister in Buenos Aires represent against open and proclaimed acts of Sovereignty accomplished by the Argentine Government; as if the effect of prolonged and undisturbed possession, *de jure et de facto*, could be destroyed by a mere document whose aim could not be but a desire to modify the matter of Arbitration, including in it one of those questions which the British Government have invariably maintained it is impossible to refer to Arbitration, since they affect the Sovereignty, and may convert into aliens the citizens of a country.*

* See Note from the Marquis of Salisbury to Sir Julian Pauncefote, dated London, March 5, 1896.

CONTENTS.



INTRODUCTORY STATEMENT.

	PAGE
REASONS FOR THIS STATEMENT	i
QUESTIONS SUBMITTED TO THE ARBITRATION OF HER BRITANNIC MAJESTY'S GOVERNMENT	iv
THE LINE FROM PARALLEL 26° 52' 45" TO THE PROXIMITY OF PARALLEL 52° S. LAT.	vi
THE LINE IN THE REGION CLOSE TO PARALLEL 52° S. LAT.	xiii
RULES OF INTERPRETATION	xiv
PLAN OF THIS STATEMENT	xv

CHAPTER I.

THE BOUNDARY DURING SPANISH COLONIAL PERIOD	1
THE BOUNDARY AFTER THE EMANCIPATION.	5

CHAPTER II.

NECESSITY OF STATING WHAT WAS UNDERSTOOD AS "CORDILLERA DE LOS ANDES"	10
MEANING OF THE "CORDILLERA DE LOS ANDES" IN THE COLONIAL EPOCH	11
RESULTS DERIVED FROM THE DOCUMENTS QUOTED	23

CHAPTER III.

	PAGE
THE CORDILLERA DE LOS ANDES ACCORDING TO THE OPINIONS MAINTAINED AT THE TIME OF EMANCIPATION	29
OPINION OF FOREIGN TRAVELLERS AND GEOGRAPHERS WHO HAVE VISITED CHILE	31
OPINION OF SEVERAL AUTHORS OF POPULAR WORKS	47
OPINION OF SCIENTIFIC MEN IN THE SERVICE OF CHILE: GAY, PISSIS, DOMEYKO AND ASTA-BURUAGA	54
OPINION OF OTHER WRITERS	66

CHAPTER IV.

OPINIONS OF THE CHILIAN EXPERT	85
THE CORDILLERA AS DESCRIBED BY THE CHILIAN EXPERT	86
THE CHILIAN EXPERT'S DEFINITIONS AND DESCRIPTION OF PATAGONIA	90

CHAPTER V.

CHILIAN OFFICIAL VIEWS REGARDING THE WORDING IN INTERNATIONAL BOUNDARIES	94
THE CHILIAN-BOLIVIAN TREATY OF 1866	95
THE CHILIAN-BOLIVIAN TREATY OF 1874	97
OTHER OFFICIAL DOCUMENTS	100

CHAPTER VI.

INTERSECTION OF THE CORDILLERA DE LOS ANDES BY RIVERS IN THE SOUTH	103
EXPLORATIONS BY LADRILLERO (1557-1559) AND GARCÍA (1766-1767)	104
EXPEDITIONS OF THE "ADVENTURE" AND THE "BEAGLE" (1826-1830)	108

	PAGE
EXPLORATIONS BY COX AND FRICK	113
EXPLORATIONS BY VIDAL GORMAZ AND SIMPSON	124
EXPEDITIONS BY THE OFFICERS OF THE CHILIAN GUNBOAT "MAGALLANES"	133
RESULTS TO BE DERIVED FROM THESE EXPLORATIONS	147

CHAPTER VII.

ORIGIN OF THE BOUNDARY QUESTION	149
THE FRONTIER LINE ACCORDING TO TREATY OF 1881	152
DIPLOMATIC NEGOTIATIONS PRIOR TO THE TREATY OF 1881	154
NEGOTIATIONS OF THE TREATY OF 1881	175

CHAPTER VIII.

ERRONEOUS CONSIDERATIONS ON THE INTERPRETATION OF THE TREATY OF 1881	181
INTERPRETATION CONSISTENT WITH INTERNATIONAL LAW	188
INTERPRETATION CONSISTENT WITH THE VIEWS OF THE NEGOTIATORS	196
INTERPRETATION CONSISTENT WITH THE LITERAL MEANING OF THE COVENANT	200
CHILIAN INTERPRETATION	223

CHAPTER IX.

CONVENTION OF 1888	231
CABINET COUNCIL OF THE ARGENTINE GOVERNMENT OF DECEMBER 24, 1889	235
DISAGREEMENT BETWEEN THE EXPERTS, SEÑORES PICO AND BARROS ARANA	245
DISAGREEMENT BETWEEN THE EXPERTS, SEÑORES VIRASORO AND BARROS ARANA	253
VARIOUS QUESTIONS SETTLED BY THE PROTOCOL OF 1893	262

CHAPTER X.

	PAGE
ERRONEOUS INTERPRETATION OF THE PROTOCOL OF 1893	266
THE OPINION OF SOME NEWSPAPERS	275
THE SPIRIT OF THE BOUNDARY TREATY DECLARED BY THE PROTOCOL	276
PARTS OF RIVERS	281
ARTICLE VI. OF THE PROTOCOL.	292
NEGOTIATIONS OF THE PROTOCOL OF 1893	294

CHAPTER XI.

INSTRUCTIONS OF JANUARY 1, 1894	305
DISAGREEMENT OF THE EXPERTS SEÑORES QUIRNO COSTA AND BARROS ARANA	314
THE 1895 AGREEMENT	324
QUESTIONS WHICH BROUGHT ABOUT THE AGREEMENT OF 1896	326
SOLUTIONS AGREED TO IN THE AGREEMENT OF 1896	329

CHAPTER XII.

PROCEEDINGS OF SEÑOR MORENO AS ARGENTINE EXPERT	335
VIEWS OF THE ARGENTINE EXPERT REGARDING THE SURVEYING OF THE GROUND.	338
EVENTS LEADING UP TO THE RECORD OF MAY 1, 1897	339
MEETING OF MAY 14, 1898	341
THE WORK OF THE ARGENTINE AND CHILIAN BOUNDARY COMMISSIONS	347

CHAPTER XIII.

	PAGE
FULFILMENT OF THE ENGAGEMENT ENTERED INTO BY THE EXPERTS ON MAY 1, 1897	357
PROPOSALS FOR THE GENERAL LINE OF FRONTIER	359
AGREEMENT AND DIFFERENCES BETWEEN THE EXPERTS	371

CHAPTER XIV.

THE RECORD OF SEPTEMBER 22, 1898	385
THE BOUNDARY LINE OF THE ARGENTINE EXPERT ACCORDING TO CHILIAN OFFICIAL ACTS	388
OPINIONS OF RECLUS, SAN ROMAN AND STEFFEN FAVOURABLE TO THE ARGENTINE LINE	393
THE ARGENTINE EXPERT HAS NOT ENTIRELY FOLLOWED THE CONTI- NENTAL WATER PARTING WHEN TRACING HIS LINE IN THE SECTIONS IN WHICH THE BOUNDARY HAS BEEN DEFINITELY FIXED	402
THE MAIN CHAIN OF THE ANDES ACCORDING TO THE ARGENTINE EXPERT	405
THE BOUNDARY LINE AT THE BIFURCATION OF THE CORDILLERA	417
INAPPLICABILITY OF THE LINE OF THE CHILIAN EXPERT	419
THE CHILIAN STATESMEN AGAINST THE CHILIAN EXPERT	421

CHAPTER XV.

CONSIDERATIONS ADVANCED IN DEFENCE OF THE CONTINENTAL DIVORTIUM AQUARUM	429
ERRONEOUS VIEWS ON THE MAIN CHAIN OF THE ANDES	431
THE WORK OF DEMARCATION	441
SUPPOSED ADVANTAGES OF THE CONTINENTAL DIVIDE	448

	PAGE
RULES OF INTERNATIONAL LAW	464
THE CONTINENTAL DIVORTIUM AQUARUM IS NOT STIPULATED IN THE TREATIES	466
THE BOUNDARY MUST BE OROGRAPHICAL AND NOT HYDROGRAPHICAL .	474
THE WATER-PARTING LINE DIVERGES FROM THE MAIN CHAIN OF THE CORDILLERA, AND IN SOME POINTS IS OUT OF IT	478
ON THE SIDE OF THE ARGENTINE REPUBLIC THERE IS MORE FACILITY OF ACCESS TO THE WATER-PARTING LINE	487
THE DIVORTIUM AQUARUM IS NOT A PERMANENT LINE	490

CHAPTER XVI.

COMPARISON BETWEEN THE ARGENTINE AND THE CHILIAN BOUNDARY LINES. GENERAL CONSIDERATIONS	495
THE PROPOSED ARGENTINE LINE FROM A GEOGRAPHICAL POINT OF VIEW	498
THE PROPOSED CHILIAN LINE FROM A GEOGRAPHICAL POINT OF VIEW .	507
THE PROPOSED ARGENTINE LINE FROM A POLITICAL, ECONOMICAL AND ADMINISTRATIVE POINT OF VIEW	518
THE PROPOSED CHILIAN LINE FROM A POLITICAL, ECONOMICAL AND ADMINISTRATIVE POINT OF VIEW	522
CAUSES WHICH LED TO THE DIFFERENCES BETWEEN BOTH LINES . . .	531
PRELIMINARY EXPLORATIONS IN THE ANDEAN REGION BETWEEN 1888 AND 1898	539
INUTILITY OF INACCURATE MAPS	556
MAPS OF THE CHILIAN BOUNDARY COMMISSION	563
CONFUSION PRODUCED IN CHILE OWING TO THE LACK OF GEOGRAPHICAL DATA	570

CHAPTER XVII.

STARTING POINT OF THE DIFFERENCES SUBMITTED TO ARBITRATION.	
PIRCA DE INDIOS AND SAN FRANCISCO LANDMARKS	575
DEMARICATION IN THE NORTH. DIVERSE CHAINS OF MOUNTAINS . . .	580

	PAGE
THE CORDILLERA DE LOS ANDES ON THE NORTH, AS DESCRIBED BY THE CHILIAN GEOGRAPHERS SEÑORES BARROS ARANA, BERTRAND, SAN ROMAN AND MUÑOZ	591
THE CORDILLERA DE LOS ANDES ON THE NORTH, ACCORDING TO SEVERAL AUTHORITIES	607
PROJECTS OF THE EXPERTS RELATING TO THE BOUNDARY LINE FROM 23° TO 26° 52' 45" S. LAT.	610
THE CHAIN POINTED OUT BY THE CHILIAN EXPERT FROM 23° TO 26° 52' 45" S. LAT. IS INTERSECTED BY RIVERS	616
THE DEFINITIVE MARKING OUT OF THE BOUNDARY LINE FROM 23° TO 26° 52' 45" S. LAT.	628
FURTHER CONSIDERATIONS ON THE SAN FRANCISCO LANDMARK	637

CHAPTER XVIII.

THE BOUNDARY BETWEEN PARALLELS 26° 52' 45" AND 40° S. LAT. OPINIONS OF DOCTORS BURMEISTER AND BRACKEBUSCH	642
REMARKS ON THE STATEMENT OF THE CHILIAN REPRESENTATIVE AS TO THE HEIGHTS OF THE LINE	652
THE ARGENTINE LINE BETWEEN PARALLELS 26° 52' 45" AND 40° S. LAT.	659

CHAPTER XIX.

DIFFERENCES BETWEEN THE EXPERTS ON THE REGION IN THE VICINITY OF LAKE LACAR	685
GENERAL CONFIGURATION OF THE REGION	688
EXPLORATIONS OF CHILIAN ORIGIN WHICH CORROBORATE THE RESULTS OF THE ARGENTINE SURVEYS	695
CUTTING OF THE RIVER HUAHUM BY THE BOUNDARY LINE	707
ARGENTINE OCCUPATION OF THE VALLEY LACAR	720

CHAPTER XX.

	PAGE
DIFFERENCES BETWEEN THE EXPERTS ON THE REGION FROM PEREZ ROSALES PASS TO THE GORGE OF RIVER MANSO	740
DIFFERENCES FROM THE GORGE OF RIVER MANSO TO THE GORGE OF RIVER PUELO	762

CHAPTER XXI.

THE VALLEY OF EPUYEN AND CHOLILA. GENERAL CONSIDERATIONS	770
EXPLORATIONS CARRIED OUT BY CHILIAN SURVEYORS	774
THE ARGENTINE LINE IN THIS REGION	780
REMARKS ON THE CHILIAN LINE	791

CHAPTER XXII.

THE VALLEY 16 DE OCTUBRE	799
ARGENTINE OCCUPATION OF THIS VALLEY	815

CHAPTER XXIII.

THE CORDILLERA DE LOS ANDES IN THE REGION OF THE CARRENLEUFU	822
EXPLORATIONS OF THE CHILIAN OFFICER SEÑOR SERRANO MONTANER	824
THE CHILIAN EXPLORING EXPEDITION OF THE PALENA	828
THE PROPOSED ARGENTINE AND CHILIAN LINES IN THIS ZONE	835

CHAPTER XXIV.

DIFFERENCES IN THE REGION OF THE RIVERS PICO AND FRÍAS	PAGE
846	
EXPLORATIONS CARRIED OUT IN THIS ZONE	849
GENERAL CONFIGURATION OF THE GROUND	859

CHAPTER XXV.

THE REGION OF LAKES FONTANA AND LA PLATA	874
THE REGION OF THE RIVER AISEN. CHILIAN EXPLORATIONS	878
GENERAL CONFIGURATION OF THE GROUND	887
THE ARGENTINE AND THE CHILIAN BOUNDARY LINES	894

CHAPTER XXVI.

DIFFERENCES BETWEEN THE EXPERTS TO THE SOUTH OF THE RIVER	
HUEMULES	900
DIFFERENCES AT THE RIVER FÉNIX	902
DIFFERENCES AT THE LAKE BUENOS AIRES	911
DIFFERENCES AT THE RIVER LAS HERAS	918
DIFFERENCES AT THE LAKE SAN MARTÍN	926
THE BOUNDARY LINE, FROM MOUNT FITZ-ROY TO MOUNT STOKES	940
REMARKS ON THE ARGENTINE LINE	943

CHAPTER XXVII.

ANTECEDENTS ON THE BOUNDARY LINE NEAR PARALLEL 52° S. LAT.	PAGE
GENERAL CONFIGURATION OF THE GROUND	947
REMARKS ON THE ARGENTINE AND CHILIAN PROPOSED BOUNDARY LINES	961
	984

CHAPTER XXVIII.

TRANSVERSAL SECTIONS. GENERAL CONSIDERATIONS	993
THE BOUNDARY FROM 23° S. LAT. TO MOUNT TRES CRUCES	994
THE BOUNDARY FROM MOUNT TRES CRUCES TO 40° S. LAT.	1002
THE BOUNDARY FROM 40° S. LAT. TO 52° S. LAT.	1017

CHAPTER XXIX.

REMARKS ON THE MAPS ACCOMPANYING THIS REPORT	1041
MAP OF THE NORTHERN REGION	1042
MAPS OF THE SOUTHERN REGION	1048
OTHER MAPS	1060

CHAPTER XXX.

CONCLUSION (SYNTHESIS OF THE ARGENTINE-CHILIAN BOUNDARY QUESTION)	1062
---	------

APPENDIX.

TREATIES, AGREEMENTS, RECORDS, ETC.:—

	PAGE
TREATY OF 1826	1101
TREATY OF 1856	1104
TREATY OF 1881	1116
CONVENTION OF 1888	1120
PROTOCOL OF 1893	1123
RECORD OF DECEMBER 24, 1893	1127
INSTRUCTIONS FOR THE ASSISTANTS WHO ARE TO MARK OUT THE BOUNDARY LINE BETWEEN THE ARGENTINE REPUBLIC AND THE REPUBLIC OF CHILE IN THE CORDILLERA DE LOS ANDES	1128
AGREEMENT OF 1895	1131
AGREEMENT OF 1896	1132
RECORD OF THE EXPERTS, MAY 1, 1897	1134
RECORD OF THE PROCEEDINGS OF THE MEETINGS OF THE ARGENTINE AND CHILIAN EXPERTS, AUGUST 29 TO SEPTEMBER 3, AND OCTOBER 1, 1898	1135-61, 1166
RECORDS SIGNED IN SANTIAGO, CHILE, BY THE ARGENTINE MINISTER, DOCTOR NORBERTO PIÑERO, AND THE MINISTER FOR FOREIGN AFFAIRS OF CHILE, RELATIVE TO THE EXPERTS' DIVERGENCES AND TO ARBITRATION	1162
RECORDS SIGNED AT SANTIAGO RELATING TO THE DEMARCATION OF THE BOUNDARY BETWEEN PARALLELS 23° AND 26° 52' 45"	1168
CONFERENCE OF BUENOS AIRES	1172
RECORDS REFERRING TO THE DEMARCATION OF THE BOUNDARIES OF THE PUNA DE ATACAMA .	1176

LIST OF ILLUSTRATIONS.

MOUNT TUPUNGATO AND TUPUNGATO PASS. Argentine landmarks Nos. 132, 133. <i>Frontispiece</i>	PAGE
MAP—FELIX DE AZARA, 1781-1801. (From Voyages dans l'Amérique Méridionale, Paris, 1809)	22
MAP—JOSÉ DE ESPINOSA Y FELIPE BAUZÁ, 1794. (Part from the Carta Esférica de la parte interior de la América Meridional para manifestar el camino que conduce desde Valparaiso á Buenos Aires, Madrid, 1810)	24
MAP—JOSÉ DE ESPINOSA Y FELIPE BAUZÁ, 1794. (Plano del Paso de los Andes, 1810)	26
MAP—ANTONIO DE HERRERA, 1601. (From Descripción de las Indias Occidentales, Madrid, 1601)	27
MAP—ANTONIO DE HERRERA, 1601. (From Descripción de las Indias Occidentales, Madrid, 1601)	28
MAP—JOHN MIERS, 1826. (From Travels in Chile and La Plata)	37
MAP—J. M. GILLISS, 1856. (From the U.S. Naval Astronomical Expedition to the Southern Hemisphere)	43
LA CUMBRE. ROBERT ELWES, 1854. (From A Sketcher's Tour round the World)	46
MAP—ALEJANDRO BERTRAND, 1880. (From Anuario Hidrográfico de Chile, Santiago, vol. 6)	106
MAPS—WILLIAM FRICK, 1862. (From Petermann's Geographische Mittheilungen, 1864. Published by permission of Justus Perthes, Gotha)	120
MAP—FRANCISCO VIDAL GORMAZ, 1863. (From Plano del Estero Comau y Rio Bodudahue, Santiago de Chile, 1866)	127
MAP—FRANCISCO VIDAL GORMAZ, 1872. (From Exploración del Seno de Reloncaví, lago de Llanquihue y rio Puelo, Santiago de Chile, 1872)	128
MAP—ALEJANDRO BERTRAND, 1886. (From Plano Topográfico de la Región Central Magallánica, Santiago, 1886)	239
MAP—SURVEYS OF THE ARGENTINE BOUNDARY COMMISSION, 1892-1898	352

	PAGE
MAP—SURVEYS OF THE CHILIAN BOUNDARY COMMISSION, 1892–1898	353
MOUNT GALLO AND ITS GLACIER, in the Main Chain of the Cordillera de los Andes, according to Dr. Steffen, and considered so by the Argentine Expert. (Reproduction of a Plate from Informe sumario acerca del trascurso y resultados generales de la expedición exploradora del río Cisnes, by Juan Steffen, Santiago, 1898)	400
REGION OF THE ORIGIN OF THE RIVER CISNES, OR FRIAS, in the Main Chain of the Cordillera de los Andes, as considered by the Chilian Expert. (Reproduction of a Plate from Informe sumario acerca del trascurso y resultados generales de la expedición exploradora del río Cisnes, by Juan Steffen, Santiago, 1898)	401
MORADO GAP (5070 m.; 16,636 f.), facing to the N.N.E. towards Mount Aconeagua. Argentine landmark No. 129	Plate II. 414
MORADO GAP (5070 m.; 16,636 f.), facing towards Mount Tupungato and Bravard Volcano. Argentine landmark No. 129	Plate III. 414
LAS PIRCAS GAP (4898 m.; 16,076 f.). Argentine landmark No. 128	Plate IV. 414
QUEBRADA HONDA GAP (4293 m.; 14,085 f.), showing Mount Aconeagua to the E.S.E. Argentine landmark No. 115	Plate V. 414
ARGENTINE BOUNDARY LINE. Landmark No. 301, on the summit of the Main Chain of the Andes (Mount San Valentín), according to the Argentine Expert	416
CHILIAN BOUNDARY LINE. Landmarks Nos. 320 and 321 (opening of Pariaiken and unnamed foot of the tableland), on the summit of the “Main Chain of the Andes,” according to the Chilian Expert	416
PANORAMA FROM THE “CONTRABANDISTAS” GAP (4436 m.; 14,557 f.). Argentine landmark No. 121, in the Main Chain of the Andes, according to the Argentine Expert. Chilian landmark No. 122	Plate VI. 425
PANORAMA FROM THE SOURCES OF THE RIVER PICO (815 m.; 2674 f). Chilian landmarks Nos. 299 and 300, in a “nameless opening”	Plate VII. 425
CONTINENTAL DIVIDE IN THE PLAIN OF VIZCACHAS	427
MOUNT TRES CRUCES (6780 m.; 22,245 f.). Argentine landmark No. 3; Chilian landmark No. 10	Plate VIII. 464
PLAINS OF DIANA (40 to 80 m.; 130 to 260 f.) in the Continental Divide, from Punta Alta. Chilian landmarks Nos. 346 and 347, in “unnamed pass” and “unnamed hillock”	Plate IX. 464
MAP—DIAGRAMMATIC SKETCH, showing the proposed Argentine and Chilian Boundary Lines	Plate X. 497
MAP—DIAGRAMMATIC SKETCH, showing the Argentine and Chilian landmarks in Sections A to J of the respective Boundary Lines	Plate XI. 499

	PAGE
MAP—DIAGRAMMATIC SKETCH, showing the Regions Militarily Occupied by the Argentine and Chilian Armies in 1881-1883	Plate <i>XII</i> . 503
GORGE OF THE RÍO PUELO. (From <i>Viage y estudios en la Región Hidrográfica del Río Puelo</i> por Juan Steffen, Santiago, 1898)	505
GORGE OF THE RIVER FETALEUFÚ	506
RAPIDS OF THE RÍO CISNES	507
RAPIDS OF THE RÍO AISEN	508
RAPIDS OF THE RÍO LAS HERAS	509
MAP—DIAGRAMMATIC SKETCH, showing the Argentine and Chilian Settlements on both sides of that part of the Cordillera de los Andes where Divergences have arisen between the Experts	Plate <i>XIII</i> . 526
MAP—DIAGRAMMATIC SKETCH, showing the Principal Argentine Railways and Wagon Roads to the South of 38° S. lat.	Plate <i>XIV</i> . 530
MAP—OSCAR DE FISCHER, 1894. (From <i>Carta General de la Región reconocida por la</i> <i>expedición exploradora del Río Palena</i>)	Plate <i>XV</i> . 542
MAP—HANS STEFFEN, 1897. (From <i>Uebersichtskarte des Chilenisch-Argentinischen Grenz-</i> <i>gebiets, 1897.</i>)	Plate <i>XVI</i> . 542
MAP—DR. JUAN STEFFEN AND SEÑOR OSCAR DE FISCHER, 1897. Sketch Map of the Hydro- graphic Basin of the Río Aisen	Plate <i>XVII</i> . 550
MAP OF THE RÍO AISEN. (From <i>Från Patagoniens vestkust till pampasområdet på Kor-</i> <i>dillerans Östra Sida, Af. P. Dusen, Ymer 1897</i>)	551
MAP OF PATAGONIA, ILLUSTRATING EXPLORATIONS OF J. B. HATCHER, 1896-1897. (From <i>National Geographical Magazine</i> , vol. viii., p. 311, Washington, 1897)	554
MAP—JUAN DE LA CRUZ CANO Y OLMEDILLA, Madrid, 1775. (Reproduction of Sheet 7.) Plate <i>XVIII</i> .	558
MAP—STIELER, 1881-1888. (Reproduced by permission from Stieler's <i>Handatlas</i> , Sheet 94.) Plate <i>XIX</i> .	558
MAP—W. & A. K. JOHNSTON, 1898.	Plate <i>XX</i> . 560
MAP—SECTION OF THE MAP OF CHILE, drawn by the General Department of Public Works of Chile, 1897	561
MAP—SECTION MAP OF CHILE, drawn by the General Department of Public Works of Chile, 1897	563
MAP—ALEJANDRO BERTRAND, 1898. (From <i>Libertad Electoral</i> , Santiago)	Plate <i>XXI</i> . 564

	PAGE
MAP—DIAGRAMMATIC SKETCH, showing the Proposed Argentine and Chilian Lines, the Itinerary of Señor Bertrand's Journey, and the Zones Surveyed by the Chilian Boundary Sub-Commissions till 1898, according to Official Documents	Plate XXII. 565
MAP—DIEGO BARROS ARANA, Chilian Expert, 1898	Plate XXIII. 567
MAP OF THE CHILIAN BOUNDARY COMMISSION, 1898	Plate XXIV. 568
MAP—HANS STEFFEN, 1898. (From Plano de la Región Patagónica).	Plate XXV. 570
MAP—SIR MARTIN CONWAY, 1898. Western Slope of the Cordillera Real de Bolivia, from Illampu to Illimani	Plate XXVI. 581
MOUNT PEINADO (5763 m.; 18,908 f.)	584
MOUNTS LASCAR (5870 m.; 19,259 f.) AND HECAR, in the Cordillera de los Andes	585
MOUNT TUMIZA (5670 m.; 18,602 f.), in the Cordillera de los Andes	586
MOUNT LEJÍA (5650 m.; 18,537 f.), in the Cordillera de los Andes	587
MOUNT MIÑIQUES (5900 m.; 19,357 f.), in the Cordillera de los Andes	588
MOUNT SOCOMPA (6080 m.; 19,948 f.), in the Cordillera de los Andes	589
LLULLAILLACO VOLCANO (6620 m.; 21,720 f.), in the Cordillera de los Andes	590
MOUNT JUNCALITO, OR WHEELWRIGHT (5900 m.; 19,357 f.), AND PIRCA DE INDIOS GAP (4590 m.; 15,059 f.), Argentine landmark No. 1, in the Main Chain of the Cordillera de los Andes	Plate XXVII. 590
CORDILLERA DE LOS ANDES, FROM LLULLAILLACO VOLCANO (6620 m.; 21,720 f.) TO AZUFRE VOLCANO (5680 m.; 18,636 f.)	591
MAP—FRANCISCO J. SAN ROMAN, 1895. (From Estudios y datos prácticos sobre las Cuestiones Internacionales de límites entre Chile, Bolivia y República Argentina, Santiago, 1895)	605
MAP—FROM PETERMANN'S GEOGRAPHISCHE MITTHEILUNGEN, 1856	Plate XXVIII. 608
MAP—FROM PETERMANN'S GEOGRAPHISCHE MITTHEILUNGEN, 1860	Plate XXIX. 608
MAP—FROM MAPA ORIGINAL DE LA REPÚBLICA ARGENTINA, ETC. Dr. A. Petermann, Gotha, Justus Perthes, 1875	Plate XXX. 608
MAP—HERMANN BURMEISTER, 1861. (From Reise durch die La Plata—Staaten, etc., Halle)	609
MAP—ALEJANDRO BERTRAND, 1884. (From Memoria sobre las Cordilleras del Desierto de Atacama)	617
MAPS—FROM CARTA GEOGRÁFICA DEL DESIERTO Y CORDILLERAS DE ATACAMA, LEVANTADO POR LA COMISIÓN EXPLORADORA DE ATACAMA. (Francisco J. San Roman, Ingeniero Jefe y Santiago Muñoz, Ingeniero Ayudante, Dirección General de Obras Públicas, Sección de Minas y Geografía. Santiago de Chile, 1890)	620, 621

	PAGE
MAP—DIEGO BARROS ARANA, Chilian Expert, 1898. (From La Cuestión de límites entre Chile y la República Argentina, Santiago, 1898)	626
MAP OF THE CHILIAN BOUNDARY COMMISSION, 1898. (From Demarcación de límites entre Chile y la República Argentina, Santiago, 1898)	627
MAP—DIAGRAMMATIC SKETCH, showing the different chains between the Cordillera Real de Bolivia and the Cordillera de los Andes to the North of 34° S. lat. <i>Plate XXXI.</i>	641
MAP—DR. HERMANN BURMEISTER, 1860	644
MAP—DR. HERMANN BURMEISTER, 1876. (From Description Physique de la République Argentine, Paris)	650
MAIN CHAIN OF THE CORDILLERA DE LOS ANDES BETWEEN MOUNT JUNCAL OR WHEELWRIGHT AND MOUNT CENIZO, from the West (at 5010 m.; 16,437 f.) . . . <i>Plate XXXII.</i>	660
VIEW TAKEN FROM THE RIDGE (5510 m.; 18,078 f.) DIVIDING THE EASTERN DEPRESSION OF TRES CRUCES TO THE NORTH FROM THE EASTERN DEPRESSION OF LAGUNAS VERDES TO THE SOUTH <i>Plate XXXIII.</i>	661
MOUNT TRES QUEBRADAS (6040 m.; 18,917 f.), from the East. Argentine landmark No. 9. <i>Plate XXXIV.</i>	661
THE WESTERN RIDGES OF THE CORDILLERA DE LOS ANDES, FROM PASS COME-CABALLO (4375 m.; 14,355 f.). Argentine landmark No. 21 <i>Fig. 1, Plate XXXV.</i>	661
THE MAIN CHAIN OF THE CORDILLERA DE LOS ANDES, FROM MOUNT BABOSO TO MOUNT TRES MOGOTES, from the High Plateau of Baboso (3740 m.; 12,271 f.) <i>Fig. 2, Plate XXXV.</i>	661
THE WESTERN RIDGES OF THE CORDILLERA, FROM THE GAP RINCÓN DE LA FLECHA (4750 m.; 15,586 f.). Argentine landmark No. 34	663
PASS VACAS HELADAS (4955 m.; 16,256 f.). Argentine landmark No. 54 (From a Photograph of the Chilian Boundary Commission)	664
TÓRTOLAS GAP (4883 m.; 16,020 f.). Argentine landmark No. 56. (From a Photograph of the Chilian Boundary Commission)	665
MOUNT TÓRTOLAS (6133 m.; 20,121 f.), from the south of Lagunita Gap. Argentine landmark No. 57	666
VALLE HERMOSO GAP (3577 m.; 11,736 f.). Argentine landmark No. 114 <i>Plate XXXVI.</i>	667
THE MAIN CHAIN FROM THE SOUTH OF THE LAGUNITA GAP (4842 m.; 15,886 f.). Argentine landmark No. 58	667
THE MAIN CHAIN OF THE CORDILLERA AT THE COMMENCEMENT OF THE RIDGE OF OLIVARES	668
AQUA NEGRA GAP (4800 m.; 15,748 ft.). Argentine landmark No. 60	669

	PAGE
MOUNT MERCEDARIO AND MERCEDARIO PASS (4025 m.; 13,206 f.). Argentine landmark No. 108	670
MOUNT ALMA NEGRA DEL MERCEDARIO	671
MOUNT CENCERRO AND CENCERRO GAP (3945 m.; 12,944 f.). Argentine landmark No. 109	672
VIEW OF THE MAIN CHAIN OF THE CORDILLERA, FROM THE RIVER MENDOZA OR CUEVAS	
<i>Plate XXXVII.</i>	672
MAP—JOHN MIERS, 1826. (From Travels in Chile and La Plata)	673
QUEBRADA HONDA GAP, looking to N.E. (4295 m.; 14,085 ft.). Argentine landmark No. 115	674
LAS PIRCAS GAP (4898 m.; 16,070 f.), from the Argentine side. Argentine landmark No. 128	<i>Plate XXXVIII.</i> 675
LAS PIRCAS GAP (4898 m.; 16,070 f.), from the Chilian side. Argentine landmark No. 128	<i>Plate XXXIX.</i> 675
MAIN CHAIN OF THE CORDILLERA DE LOS ANDES, SHOWING MOUNTS CHIMBOTE AND POLLERAS. Argentine landmarks Nos. 130 and 131	<i>Plate XL.</i> 675
THE MAIN CHAIN OF THE CORDILLERA, FROM LOS PATOS VALLEY	675
MORADO GAP (5070 m.; 16,636 f.). Argentine landmark No. 129	676
TUPUNGATO GAP (4800 m.; 19,029 f.). Argentine landmark No. 132	<i>Plate XLI.</i> 676
THE HIGH LAVA PLATEAU OF MAIPU VOLCANO (5331 m.; 17,490 f.), and the Main Ridge to the South	<i>Plate XLII.</i> 676
SOURCES OF RIVER CAUQUENCITO AT MOLINA GAP (4320 m.; 14,173 f.). Argentine landmark No. 157. (From a Photograph of the Chilian Boundary Commission)	<i>Plate XLIII.</i> 677
LAS LEÑAS GAP (4010 m.; 13,156 f.). Argentine landmark No. 159. (From a Photograph of the Chilian Boundary Commission)	<i>Plate XLIV.</i> 677
THE MAIN CHAIN OF THE ANDES AT LAS LEÑAS GAP (4010 m.; 13,156 f.). Argentine landmark No. 159. (From a Photograph of the Chilian Boundary Commission)	<i>Plate XLV.</i> 677
LAGUNA DIAMANTE, and the Main Ridge of the Cordillera to the north of Maipn Volcano	677
LAGUNAS GAP (3940 m.; 9514 f.)	678
THE MAIN CHAIN OF THE CORDILLERA DE LOS ANDES, FROM MOUNT SANTA-HELENA TO MOUNT PETEROA. Argentine landmarks Nos. 162 to 170. (Photograph taken from the East)	
<i>Fig. 1, Plate XLVI.</i>	678
THE BIFURCATION OF THE CORDILLERA DE LOS ANDES	<i>Fig. 2, Plate XLVI.</i> 678
PASS OF LAS DAMAS, in the Main Chain of the CORDILLERA (2900 m.; 9514 f.) Argentine landmark No. 161	679
THE MAIN CHAIN OF THE CORDILLERA IN THE CAJÓN OF THE RIVER MAULE	680

	PAGE
GLACIER OF MOUNT PULUL (2715 m.; 8907 f.), in the Bifurcation of the Cordillera. From the sources of the Yumuyumu stream <i>Plate XLVII.</i>	681
MOUNT COLOCO (2044 m.; 6707 f.), from Mount Uriburu (2146 m.; 7041 f.). <i>Plate XLVIII.</i>	681
LAS DIUCAS GAP (1950 m.; 6398 f.). Argentine landmark No. 216	681
PICHACHEN PASS, in the Main Chain of the Cordillera de los Andes (2018 m.; 6621 f.). Argentine landmark No. 228	682
VOLCANO LANIN (3774 m.; 12,383 f.), from the West <i>Plate XLIX.</i>	683
COLPULHUE GAP (2073 m.; 6802 f.). Argentine landmark No. 230	683
MOUNTS QUINQUILIL (2218 m.; 7277 f.) AND POCOLPEN (2077 m.; 6815 f.), from the West <i>Plate L.</i>	684
VIEW OF SOME REGIONS TO THE EAST OF LAKE LACAR <i>Fig. 1, Plate LI.</i>	688
PANORAMA OF THE CORDILLERA DE LOS ANDES, from a hill to the North of the Western part of Lake la Plata. (Height, between 1700 and 2200 m.; 5578 and 7218 f.). <i>Fig. 2, Plate LI.</i>	688
CORDILLERA DE LOS ANDES, from Mount Perihueico <i>Plate LII.</i>	690
CORDILLERA DE LOS ANDES. Panorama from the Eastern Slope of Mount Acol (1960 m.; 6431 ft.) <i>Plate LIII.</i>	690
GORGE OF RIVER HUAHUM, RIDGES OF MOUNTS MAHIHUEU AND ACOL, AND RIDGE OF IPELA, from the East <i>Plate LIV.</i>	690
MAIN CHAIN OF THE CORDILLERA DE LOS ANDES (RIDGE OF IPELA), from the East (2260 m.; 7415 ft.) <i>Fig. 1, Plate LV.</i>	690
MAIN CHAIN OF THE CORDILLERA DE LOS ANDES (RIDGE OF IPELA), from the East <i>Fig. 2, Plate LV.</i>	690
BED OF THE FORMER RIVER FROM LAKE LACAR TOWARDS LAKE LOLOG, at Quilanlahue <i>Plate LVI.</i>	691
MOUNT CHAPELCO (2364 m.; 7756 f.), showing the stream Calfuco running to the West, and to the East the Chapelco Stream <i>Fig. 1, Plate LVII.</i>	693
CONTINENTAL DIVIDE AT QUILQUIHUE (797 m.; 2615 f.) <i>Fig. 2, Plate LVII.</i>	693
MAP—DR. HASSENSTEIN, 1893. (From Petermann's Mitteilungen, 1893) <i>Plate LVIII.</i>	696
CERRO DEL PERRO (1050 m. 3445 f.)	706
MAP FROM SHEETS E 2 AND E 3 OF THE 1:50,000 MAP OF THE TURKO-GREEK BOUNDARY COMMISSION, showing the Kritzovali (Kourtsiovali) depression	710
MAP FROM SHEET E 2 OF THE TURKO-GREEK BOUNDARY COMMISSION MAP, SHOWING THE LAKE NEZEROS DISTRICT	711

	PAGE
MAP—TURKO-GREEK FRONTIER	712
MAP—TRANSYLVANIAN ALPS AND THE ALUTA	715
MAP—THE SPOL AND THE VAL DI LIVIGNO	717
MAP—BOUNDARY BETWEEN BULGARIA AND EASTERN ROUMELIA	718
MAP—BOUNDARY BETWEEN SWEDEN AND NORWAY	719
MAP—THE TIAN SHAN RANGE	720
MAP—JORGE BRÜNDSTED, 1893 (Buenos Aires)	730
LAKE LACAR, showing some cultivated lands existing in 1896, at Curuhueca village, where San Martín de los Andes has been founded <i>Plate LIX.</i>	733
MAP—JORGE J. ROHDE, 1889. (From Mapa de los territorios del Limay y Neuquen, etc.) .	734
PUERTO BLEST, IN LAKE NAHUEL-HUAPI	741
MOUNT TRONADOR (3400 m.; 11,155 f.) AND THE RIVER PEULLA. Argentine landmark No. 282	742
BARILOCHE GAP, from South-West to North-East, AND LAKE CHRISTIE	746
PANORAMA OF LAKE NAHUEL-HUAPI, from Peninsula de San Tadeo <i>Plate LX.</i>	746
LAKE VIDAL GORMAZ AND THE MAIN CHAIN OF THE ANDES, to the West of Mount Catedral <i>Plate LXI.</i>	747
BARILOCHE GAP, from the East, AND LAKE FELIPE	747
NORTHERN PART OF LAKE MASCARDI AND MOUNT TRONADOR	748
WESTERN PART OF LAKE MASCARDI	749
LAKE VIDAL GORMAZ, from the North, showing in the distance the Main Chain of the Andes	750
LAKE HESS AND MOUNT TRONADOR	751
SWAMPS BETWEEN LAKES MASCARDI AND HESS	752
THE ALLUVIAL FAN BETWEEN LAKES GUTIERREZ AND MASCARDI <i>Plate LXII.</i>	753
MAP—SKETCH OF THE REGION BETWEEN LAKES MASCARDI AND NAHUEL-HUAPI	754
SKETCH OF THE REGION WHERE RIVER MANSO TAKES ITS RISE. By the Seventh Chilian Boundary Sub-Commission, Santiago, 1898 <i>Plate LXIII.</i>	756
MOUNTS PARTIDO AND FUERTE, from the South of the Outlet of Lake Vidal Gormaz	757
THE RIVER MANSO AND THE VÍBORAS STREAM—S.S.W. OF MOUNT VENTISQUERO in the Main Chain	758
THE RIVER MANSO, towards the North-West, AND MOUNTS QUEMADO AND SANTA HELENA	759

List of Illustrations.

xxxix

	PAGE
THE RIVER MANSO AND MOUNT VENTISQUERO (2100 m.; 6890 f.), in the Main Chain .	760
PANORAMA TAKEN FROM THE SUMMIT OF MOUNT COLORADO (2000 m.; 6562 f.), in the Pre-Cordillera	Plate LXIV. 761
THE RIVER MANSO IN THE NARROWS	761
LAKE INFERIOR OF RIVER PUELO, to the West	764
THE VALLE NUEVO. VIEW TOWARD THE NORTH. (Reproduction of Plate IV. from "Viages y estudios en la Región Hidrográfica del Río Puelo," by Dr. Juan Steffen, Santiago, 1898)	
	Fig. 1, Plate LXV. 764
SNOWY MOUNTAIN MASSIVES WHICH BOUND VALLE NUEVO TOWARD THE WEST. (Reproduction of Plate VII. from "Viages y estudios en la Región Hidrográfica del Río Puelo," by Dr. Juan Steffen, Santiago, 1898)	Fig. 2, Plate LXV. 764
OUTLET OF LAKE PUELO AND MAIN CHAIN OF THE ANDES	Plate LXVI. 765
PANORAMA TAKEN FROM THE NORTH OF THE APICHIG OPENING, showing the small Ridge of Apichig, the Valley from where descend Rivers Maiten and Villegas, and to the West the Main Chain of the Andes, preceded by the Prolongation of the Serrucho Ridge.	
	Plate LXVII. 766
THE PLAIN OF CHOLILA AND MAITEN, FROM CAQUEL HUINCUL	Fig. 1, Plate LXVIII. 773
PANORAMA, FROM MOUNT 30 DE MARZO	Fig. 2, Plate LXVIII. 773
RIVER BODUDAHUE AND THE CORDILLERA	781
RIVER BODUDAHUE, to the W.N.W. (From a Photograph taken near the gap in the Main Chain)	782
GAP IN THE MAIN CHAIN (1072 m.; 3817 f.), between the Sources of Rivers Bodudahue and Navarro, to the South-West. Argentine landmark No. 288	783
THE CORDILLERA, from Mount Trepado (2400 m.; 7874 f.)	784
MAIN CHAIN OF THE ANDES, SHOWING MOUNTS ANEXO AND TRES PICOS FROM THE RIVER TIGRE	785
MAIN CHAIN OF THE ANDES. MOUNTS ALTO, ANEXO AND TRES PICOS. THE RIVER TIGRE AT THE CONFLUENCE OF RIVERS 1 AND 2	786
LAKE REÑIHUE TO THE EAST, FROM THE VALLEY TORRENTES. Mount Pirámides at the end.	
	Fig. 1, Plate LXXIX. 786
LAKE REÑIHUE TO THE EAST, AND THE MAIN CHAIN	Fig. 2, Plate LXXIX. 786
PANORAMA FROM NAVARRO GAP (1000 m.; 3281 f.) Argentine landmark No. 289.	
	Fig. 1, Plate LXX. 787
PANORAMA TAKEN FROM PELADITO HILL (1340 m.; 4396 f.), and, showing the Valley of Cholila (680 m.; 2231 f.)	Fig. 2, Plate LXX. 787
LAKE STANGE, from the South towards N.W. and N.	Fig. 1, Plate LXXI. 787

	PAGE
LAKE KRÜGER, from E. to W., showing at the end the Depression containing Lake Stange.	
<i>Fig. 2, Plate LXXI.</i>	787
MOUNTAINS TO THE SOUTH-WEST OF MOUNT SUBIR (PICO BAYO AND FEROS) AND THE RIVER TIGRE	787
THE RIVER TIGRE, to the West, AND MOUNTS CHATO AND DOS PICOS in the Main Chain of the Andes	788
THE MAIN CHAIN, from Cruz Gap to the North-west	789
PHOTOGRAPH TAKEN FROM THE LOS ALERCES GAP TO THE WEST	790
THE MAIN CHAIN OF THE ANDES BETWEEN RIVERS REÑIHUE AND ALERCES	791
THE VALLEY OF LA CRUZ, from the Gap of the same name to the East	792
MOUNT LAS TORRECILLAS, from Isla Grande	793
THE MAIN CHAIN OF THE ANDES, 43° 18' S. lat.	794
MOUNT ESPOLÓN, 43° 13' S. lat.; at the Main Chain of the Andes	795
THE NARROWS OF THE FETALEUFU, where the Argentine Boundary Line passes	796
THE RIVER FETALEUFU at the Narrows	797, 798
THE SÚNICA-PARIA FLUVIO-GLACIAL PLAINS <i>Fig. 1, Plate LXXVII.</i>	806
THE PLAIN OF ESGUEL AND TEMENHUAO STREAM <i>Fig. 2, Plate LXXVII.</i>	806
THE OPENING OF ESGUEL AND THE TRANSVERSAL DEPRESSION ESGUEL-TECKA, from the Opening of Nahuelpan <i>Fig. 1, Plate LXXVIII.</i>	807
THE BED OF THE DRIED-UP LAKE OF CORINTOS, now called "Pampas de Corintos," and its Terraces <i>Fig. 2, Plate LXXVIII.</i>	807
THE PAMPA OF CORINTOS, from the South <i>Fig. 1, Plate LXXIV.</i>	811
VALLEY 16 DE OCTUBRE, to the West, from Peladito Hill to Valley Carrenleufu. Photograph taken from River Percy (500 m.; 1640 f.) <i>Fig. 2, Plate LXXIV.</i>	811
MOUNT SITUACIÓN, from one of the Farms in the Colony of 16 de Octubre	812
LAKE ROSARIO AND THE FIRST RIDGES OF THE CORDILLERA DE LOS ANDES, to the West	
<i>Plate LXXV.</i>	814
A FARM IN COLONY 16 DE OCTUBRE	817
SKETCH SHOWING THE FIRST SETTLERS IN THE VALLEY 16 DE OCTUBRE	819
SERRANO MONTANER, 1898. (From Límites con la República Argentina, Santiago)	827
MAP—Dr. HANS STEFFEN, 1895. (From Das Thal des Rio Palena-Carrileufu)	831

List of Illustrations.

xli

	PAGE
SOUTH OF VALLEY 16 DE OCTUBRE, and its Southern Prolongation in the Valley of the Carren-leufu <i>Plate LXXVI.</i>	837
MOUNT SERRANO, from the River Carrenleufu to the S.W.	837
RIVER CARREN-LEUFU, flowing from Lake Paz	838
CORDILLERA DE LOS ANDES TO THE WEST OF LAKE PAZ <i>Plate LXXVII.</i>	838
LAKE PAZ AND THE EASTERN RIDGES OF THE CORDILLERA DE LOS ANDES, to the North of the Lake <i>Plate LXXVIII.</i>	838
RIVER CARREN-LEUFU. Eastern Ridge of the Cordillera to the North-West of the Outlet of Lake General Paz <i>Plate LXXIX.</i>	839
LAKE GENERAL PAZ AND THE FIRST SPUR OF THE CORDILLERA, from the East <i>Plate LXXX.</i>	839
RIVER CARREN-LEUFU, before entering the Eastern Ridges of the Cordillera . <i>Plate LXXXI.</i>	839
VALLEY OF THE CARREN-LEUFU, where the river changes its course towards the West before entering the Cordillera <i>Plate LXXXII.</i>	839
LAKE PAZ, THE EASTERN FLUVIO-GLACIAL PLAIN, AND THE FIRST SPURS OF THE CORDILLERA .	840
PANORAMIC VIEW OF PAMPA GRANDE (760 m.; 2493 f.) <i>Plate LXXXIII.</i>	841
RIVER CARREN-LEUFU, before entering the Cordillera, AND THE RIDGE OF MOUNT CUCHE .	841
CATANGO HILLS, from the Eastern bend of the River Carren-Leufu. <i>Fig. 1, Plate LXXXIV.</i>	842
THE PLAIN TO THE EAST OF THE RIVER CARREN-LEUFU, showing that River and the Catango Hills <i>Fig. 2, Plate LXXXIV.</i>	842
THE CONTINENTAL DIVIDE AT, AND TO THE WEST OF, THE DIABLO HILL . <i>Plate LXXXV.</i>	842
LA PIEDRA, Rising Ground (1150 m.; 3775 f.) <i>Plate LXXXVI.</i>	843
THE PUTRACHOIQUE AND THE TEPUEL HILLS, from the Plain to the South of Ñirehuao Stream <i>Plate LXXXVII.</i>	843
MAP—MUSTERS, 1871. (From at Home with the Patagonians)	850
WATERFALL IN THE RIVER CISNES	851
THE TECKA VALLEY AND THE QUICHAURA RIDGE, from the East <i>Fig. 1, Plate LXXXVIII.</i>	860
LA PIEDRA AND DIABLO HILLS <i>Fig. 2, Plate LXXXVIII.</i>	860
PANORAMA FROM ÑIREHUAO STREAM <i>Fig. 1, Plate LXXXIX.</i>	861
VIEW OF TEPUEL HILLS, from Ñirehuao Stream <i>Fig. 2, Plate LXXXIX.</i>	861
CONTINENTAL DIVIDE, between River Pico and Cherque Stream (815 m.; 2674 f.). (Photograph taken from the Plain of Cherque) <i>Fig. 1, Plate XC.</i>	861

	PAGE
THE REGION OF THE CONTINENTAL DIVIDE, from the Terraces to the East of River Pico	
<i>Fig. 2, Plate XC.</i>	861
CONTINENTAL DIVIDE IN THE CHERQUE PLAIN	<i>Fig. 1, Plate XCI.</i> 862
RIVER PICO, in the Valley of the General Tableland	<i>Fig. 2, Plate XCI.</i> 862
THE PLAIN OF THE CONTINENTAL DIVIDE, from the South-East of River Pico	
<i>Fig. 1, Plate XCII.</i>	862
THE PLAIN TO THE WEST OF THE CONTINENTAL DIVIDE, at River Pico	<i>Fig. 2, Plate XCII.</i> 862
DIVIDE BETWEEN RIVERS FRÍAS AND PICO, from the West	<i>Plate XCIII.</i> 863
REGION TO THE WEST OF THE CONTINENTAL DIVIDE. Upper Valleys of Rivers Pico and Frías	
<i>Fig. 1, Plate XCIV.</i>	863
LAKE AZUL, seen from the East	<i>Fig. 2, Plate XCIV.</i> 863
THE TOP OF "LOMA BAGUALES," or Continental Divide Tableland	<i>Fig. 1, Plate XCV.</i> 863
EASTERN RIDGES OF THE CORDILLERA DE LOS ANDES, from River Frías	<i>Fig. 2, Plate XCV.</i> 863
THE REGION TO THE WEST OF THE CONTINENTAL DIVIDE. Valley of River Pico	
<i>Fig. 1, Plate XCVI.</i>	864
TABLELAND WHERE RIVER FRÍAS ORIGINATES	<i>Fig. 2, Plate XCVI.</i> 864
CÁCERES HILL, from the North-West.	864
ORIGINS OF THE SOUTH-EASTERN ARM OF THE RIVER FRÍAS, IN THE PRE-CORDILLERA	865
THE VALLEY OF TEMENHUAO STREAM: Ancient Bed of a River Outlet of the Lake Pico before the Cutting of the Main Chain. View to the West	866
THE PLAINS OF THE CONTINENTAL DIVIDE, to the South of Cherque Stream	
<i>Fig. 1, Plate XCVII.</i>	866
THE CONTINENTAL DIVIDE PLAIN	<i>Fig. 2, Plate XCVII.</i> 866
CONTINENTAL DIVIDE. Sources of the Streams Temenhuaio and Omkel	<i>Fig. 1, Plate XCVIII.</i> 866
OMKEL STREAM, AND THE MORAINES WHICH BORDER IT	<i>Fig. 2, Plate XCVIII.</i> 866
THE MORAINIC TERRACES IN THE CONTINENTAL DIVIDE	<i>Fig. 1, Plate XCIX.</i> 866
THE PLAINS OF THE CONTINENTAL DIVIDE, between Omkel and Appeleg Streams and River Frías	<i>Fig. 2, Plate XCIX.</i> 866
PLAIN OF THE CONTINENTAL DIVIDE (880 m.; 2887 f.)	<i>Fig. 1, Plate C.</i> 867
THE CONTINENTAL DIVIDE in a Depression of the Plain between the Sources of River Frías and of Appeleg Stream	<i>Fig. 2, Plate C.</i> 867
THE CONTINENTAL DIVIDE between Tributaries of the Appeleg Stream and of the River Frías.	
<i>Fig. 1, Plate CI.</i>	867
THE GREAT BEND OF THE RIVER FRÍAS, to the West	<i>Fig. 2, Plate CI.</i> 867

List of Illustrations.

xliii

	PAGE
TEMENHUAO STREAM. View to the East	867
THE CONTINENTAL DIVIDE, from the Terrace West of River Frías	Fig. 1, Plate CII. 867
VALLEY OF RIVER FRÍAS, from the South	Fig. 2, Plate CII. 867
THE EASTERN SPURS OF THE CORDILLERA, from the Longitudinal Depression to the West of the Continental Divide	Fig. 1, Plate CIII. 870
PANORAMA FROM THE EASTERN LONGITUDINAL DEPRESSION (VALLEY OF RIVER PICO). The Eastern Spurs and the First Ridges of the Cordillera de los Andes	Fig. 2, Plate CIII. 870
THE EASTERN SPURS OF THE CORDILLERA, from Lake No. 4, to the North-West	Fig. 1, Plate CIV. 870
THE EASTERN RIDGE OF THE CORDILLERA DE LOS ANDES, from near the Summit of Mount Botella	Fig. 2, Plate CIV. 870
PANORAMA OF THE CORDILLERA, FROM A SUMMIT OF 1930 METRES (6332 f.) to the N.W. of Mount Botella	Fig. 1, Plate CV. 870
RIVER PICO, PENETRATING THE FIRST RIDGES OF THE CORDILLERA DE LOS ANDES, to the West.	Fig. 2, Plate CV. 870
MOUNTS CACIQUE BLANCO, AZÚCAR AND MAGDALENA, in the Eastern Ridge of the Cordillera, from the Eastern Plains	Plate CVI. 870
MOUNT PAN DE AZÚCAR, from the South. River Frías	871
DIAGRAM—THE ARGENTINE LINE IN THE MAIN CHAIN OF THE ANDES (landmarks Nos. 290 to 298); and THE CHILIAN LINE IN THE CONTINENTAL DIVIDE (landmarks Nos. 298 to 310)	872
THE CORDILLERA DE LOS ANDES, from North-East to West, showing the Transversal depression of River Frías or Cisnes	Fig. 1, Plate CVII. 875
LAKE LA PLATA, and the Transversal depression between the Cordillera and the Pre-Cordillera to the South of the Lake	Fig. 2, Plate CVII. 875
LAKES FONTANA AND LA PLATA	Plate CVIII. 875
RAPID OF THE CHILOTE (River Aisen)	881
THE EASTERN RIDGE OF THE CORDILLERA, from the Hills to the East of the River Mañihuales	882
THE PLAIN OF THE CONTINENTAL DIVIDE, to the South-east, from Mount Katterfeld	887
THE EDGE OF THE TABLELAND AT CANTAUSH	888
THE PLAINS OF COYET AND GOICHEL, from a Basaltic Crag at the Northern Tableland	Fig. 1, Plate CLX. 889
THE BEND OF RIVER GOICHEL AND THE PLAINS OF COYET, from the North-West to the South-West, where the Chilian Expert locates the Main Chain of the Andes (Chilian landmark No. 314, at the Continental Divide)	Fig. 2, Plate CLX. 889

	PAGE
THE FIRST RIDGE OF THE CORDILLERA IN THE UPPER AISEN REGION, from the South-West of Mount Katterfeld	Plate CX. 889
THE DEPRESSION OF COYET, seen from Cantaush	889
THE WESTERN EDGE OF THE TABLELAND, between Rivers Aisen and Coyaiken Fig. 1, Plate CXI.	890
THE VALLEY OF RIVER GOICHEL, Pre-Cordillera and the Eastern Ridge of the Cordillera from Richard's Farm	Fig. 2, Plate CXI. 890
THE CONTINENTAL DIVIDE, at the Valley of River Mayo. Sources of Rivers Mayo and Coyaiken	Plate CXII. 892
THE DEPRESSION OF LAGUNA BLANCA. Continental Divide	Fig. 1, Plate CXIII. 893
VALLEY OF THE UPPER AISEN, in the Depression of Laguna Blanca	Fig. 2, Plate CXIII. 893
PANORAMA OF THE VALLEY OF RIVER AISEN, Western Region, from a Point N.W. of Lake Elizalde	Plate CXIV. 893
VALLEY OF THE SOUTHERN BRANCH OF UPPER AISEN, to the West of the Continental Divide and to the East of Lake Elizalde	Fig. 1, Plate CXV. 893
HILLS TO THE WEST OF THE VALLEY OF UPPER AISEN	Fig. 2, Plate CXV. 893
THE CORDILLERA DE LOS ANDES, to the West of the River Mañihuales	895-898
THE TABLELAND BETWEEN RIVERS MAYO AND COYAIKEN, where the Continental Divide occurs, and the Depression of the Upper River Aisen	Fig. 1, Plate CXVI. 901
VALLEY OF LAKE BUENOS AIRES.—A Morainic Landscape at River Fénix Fig. 2, Plate CXVI.	901
TRANSVERSAL SECTION BETWEEN THE PRE-CORDILLERA AND THE TABLELAND IN THE AISEN REGION	902
THE DITCH OF THE RIVER FÉNIX, as it appeared in April 1898	908
DIAGRAMMATIC TRANSVERSAL SECTION OF THE PATAGONIAN TABLELAND	909
DIAGRAMMATIC SECTION OF THE TRANSVERSAL VALLEYS EXCAVATED IN THE TABLELAND OF PATAGONIA	909
MORAINES OF THE RIVER FÉNIX, to the West of the Continental Divide	910
RIVER FÉNIX AND ITS VALLEY, to the West of the Pretended Continental Divide Plate CXVII.	910
VALLEY AND RIVER FÉNIX AT THE BEND OF PARIAIKEN, where the Chilian Experts Locate the Highest Crest of the Andes that Divide the Waters	Plate CXVIII. 910

List of Illustrations.

xlv

	PAGE
LAKE BUENOS AIRES, to the W.N.W.	912
MORAINES OF THE VALLEY OF RIVER FÉNIX, and the Southern Tableland Capped with Lava <i>Fig. 1, Plate CXIX.</i>	912
EASTERN PART OF LAKE BUENOS AIRES, showing the Ancient Atlantic Outlet <i>Fig. 2, Plate CXIX.</i>	912
THE CORDILLERA DE LOS ANDES, and the North-Western Part of the Basin of Lake Buenos Aires. (From Mount Ap Ywan) <i>Fig. 1, Plate CXX.</i>	913
LAKE BUENOS AIRES, from the South <i>Fig. 2, Plate CXX.</i>	913
LAKE BUENOS AIRES, to the West	914, 915
THE OUTLET OF LAKE BUENOS AIRES INTO LAKE SOLER	916
THE PRE-CORDILLERA, to the West of River Jeinemeni <i>Fig. 1, Plate CXXI.</i>	916
THE LONGITUDINAL DEPRESSION, between the Pre-Cordillera and the Tableland to the South of Lake Buenos Aires <i>Fig. 2, Plate CXXI.</i>	916
THE TABLELAND CAPPED WITH LAVA, to the South of Lake Buenos Aires. <i>Fig. 1, Plate CXXII.</i>	917
THE LONGITUDINAL DEPRESSION BETWEEN THE PRE-CORDILLERA AND THE TABLELAND, to the North of Lake Belgrano and to the West of Mount Belgrano <i>Fig. 2, Plate CXXII.</i>	917
THE DEPRESSION BETWEEN THE PRE-CORDILLERA AND THE TABLELAND	917
EMBANKMENT AND GLACIER BED, showing the retirement of the Water of the Lake Buenos Aires as erosion progressed from the West, changing its drainage	920
THE PATAGONIAN TABLELAND AND THE CANYONS OF CHARCANA AND ECKER <i>Fig. 1, Plate CXXIII.</i>	923
THE DEPRESSION OF GIO, from the Canyon of Ecker till the South-East of Gorro de Poivre. Mount Colorado is not visible on the West, as it is covered with clouds <i>Fig. 2, Plate CXXIII.</i>	923
CONFLUENCE OF THE RIVERS TAMANGO AND LAS HERAS	924
THE DEPRESSION OF GIO, as seen from the Northern Volcanic Tableland <i>Fig. 1, Plate CXXIV.</i>	924
PANORAMA OF THE GENERAL TABLELAND, taken from the Upper Course of Olnie Stream <i>Fig. 2, Plate CXXIV.</i>	924
PANORAMA OF THE NORTHERN REGION OF LAKE PUEYRREDON <i>Fig. 1, Plate CXXV.</i>	925
LAKE PUEYRREDON TO THE SOUTH AND WEST, with River Las Heras and Lake Negro <i>Fig. 2, Plate CXXV.</i>	925

	PAGE
THE REGION OF THE LAKES NEGRO, SORPRESA AND AZUL, to the West of Lake Pueyrredon <i>Fig. 1, Plate CXXVI.</i>	925
RIVER LAS HERAS, between the Confluences of River Tamango and River Pueyrredon <i>Fig. 2, Plate CXXVI.</i>	925
MOUNT LAS HERAS, in Calen Inlet, to the West of the Outlet of the River Las Heras	925
MOUTH OF THE RIVER LAS HERAS, in Calen Inlet	926
EASTERN PART OF LAKE BELGRANO, showing the Fluvio-Glacial Plains, the Ancient Outlet to the East, and the General Patagonian Tableland <i>Fig. 1, Plate CXXVII.</i>	927
LAKE NANSEN AND THE EASTERN RIDGE OF THE CORDILLERA <i>Fig. 2, Plate CXXVII.</i>	927
THE EASTERN RIDGES OF THE CORDILLERA DE LOS ANDES, to the West of the River Las Heras	927
PATAGONIAN TABLELAND, BETWEEN THE RIVER CHICO AND OLNIE STREAM	928
LAKE BELGRANO (760 m.; 2493 f.) <i>Fig. 1, Plate CXXVIII.</i>	929
THE DRIED-UP LAKE TO THE EAST OF RIVER MAYER, where the Continental Divide is produced <i>Fig. 2, Plate CXXVIII.</i>	929
RECENT DRAINAGE OF LAKE BELGRANO INTO LAKE AZARA	930
LAKE AZARA, and the Cordillera to the West	931
EASTERN PART OF THE PRE-CORDILLERA, AND WESTERN PART OF THE TABLELAND AT THE UPPER VALLEY OF RIVER MAYER <i>Fig. 1, Plate CXXIX.</i>	933
THE PRE-CORDILLERA, from the Confluence of Rivers Mayer and Nansen <i>Fig. 2, Plate CXXIX.</i>	933
FLUVIO-GLACIAL DRIFT AT THE RIVER MAYER	933
DEPRESSION BETWEEN THE CORDILLERA AND THE PRE-CORDILLERA, through which the River Mayer flows into the Eastern Arm of Lake San Martín	934
EASTERN RIDGE OF THE CORDILLERA TO THE WEST OF RIVER MAYER <i>Fig. 1, Plate CXXX.</i>	934
THE LAVA TABLELAND BETWEEN RIVER CHICO AND LAKE SAN MARTÍN <i>Fig. 2, Plate CXXX.</i>	934
THE OUTLET OF LAKE SAN MARTÍN, at its commencement	935
THE OUTLET OF LAKE SAN MARTÍN, in the River Toro, and the Cordillera to the West	936
SOUTH-WESTERN PART OF THE OUTLET OF LAKE SAN MARTÍN, from the East	937
RAPIDS OF THE RIVER TORO, Outlet of Lake San Martín	938

	PAGE
LAVA BEDS BETWEEN THE RIVER MAYER AND LAKE SAN MARTÍN	938
LAKE SAN MARTÍN TO THE EAST, and its adjacent outlet in that direction	
Fig. 1, Plate CXXXI.	939
WESTERN PART OF LAKE SAN MARTÍN	Fig. 2, Plate CXXXI. 939
KOCHAİK HILL	939
THE ANCIENT OUTLET TO THE EAST OF LAKE SAN MARTÍN	939
MOUNT FITZ-ROY (3370 m.; 11,057 f.)	940
MOUNT CAMPANA, in the Cordillera to the West of Lake Viedma	941
EASTERN SPURS OF MOUNT AGASSIZ	942
MOUNT HEIM (2450 m.; 8038 f.), from the Northern Arm of Lake Argentino	943
GLACIER OF LAKE VIEDMA	944
GLACIER IN THE WESTERN ARM OF LAKE ARGENTINO	945
MOUNT NORTE (2950 m; 9679 f.), South-West of Lake Viedma	962
SOUTH-WESTERN PART OF LAKE ARGENTINO, showing the Eastern Ridge of the Cordillera and the Glacier, the Branches of which are Tributaries to the Atlantic and to the Pacific	
Plate CXXXVII.	962
EASTERN SLOPE OF THE ANDES AT LAKE ARGENTINO	Plate CXXXVIII. 963
THE FRONT OF THE GLACIER, in the Western Arm of Lake Argentino	963
REGION OF THE CONTINENTAL DIVIDE, to the South-East of the River Vizcachas	966
THE GLACIAL DRIFT, in the Depression of the River Coile to the East of Vizcachas	966
REGION OF THE CONTINENTAL DIVIDE, in the Transversal Depression of the River Coile	967
THE RIVER VIZCACHAS	967
BEND OF THE RIVER VIZCACHAS, at the Continental Divide	968
MORAINES AT THE CONTINENTAL DIVIDE, to the East of the River Vizcachas	968
BASALTIC CLIFF IN VIZCACHAS TABLELAND	969
REGION OF THE CONTINENTAL DIVIDE, to the East of the River Vizcachas	969
WATERFALL OF THE RIVER PAINE	970

	PAGE
MOUNT PAINE, from the East	971
LAKE HAUTHAL AND THE EASTERN RIDGE OF THE CORDILLERA DE LOS ANDES · <i>Plate CXXXIV.</i>	971
PANORAMIC VIEW FROM RIVER ZAMORA AT 51° S. LAT. <i>Fig. 1, Plate CXXXV.</i>	973
LAKE MARAVILLA, from the East <i>Fig. 2, Plate CXXXV.</i>	973
THE EASTERN RIDGES OF THE CORDILLERA, from the Summit of Contreras Ridge <i>Fig. 1, Plate CXXXVI.</i>	973
THE EASTERN RIDGES OF THE CORDILLERA AND THE PRE-CORDILLERA, to the West of Contreras Ridge <i>Fig. 2, Plate CXXXVI.</i>	973
CONSUELO COVE, in LAST HOPE INLET <i>Fig. 1, Plate CXXXVII.</i>	973
LAKE PINTO, cut by Parallel 52° South Latitude <i>Fig. 2, Plate CXXXVII.</i>	973
VIEW FROM THE PLAINS TO THE WEST OF LAKE MARAVILLA	973
NORTH-EAST COAST OF LAST HOPE INLET	974
PANORAMIC VIEW TAKEN IMMEDIATELY TO THE EAST OF THE BEND OF RIVER VIZCACHAS <i>Plate CXXXVIII.</i>	975
BASALTIC LAVA TO THE SOUTH-EAST OF VIZCACHAS TABLE-HILL	975
BALLENA HILL AND THE EASTERN MORAINES OF LAKE MARAVILLA	977
THE TABLELAND TO THE SOUTH-WEST OF RIVER SANTA CRUZ	978
BAGUALES RIDGE, from the Plains of the Continental Divide at the North-West Edge of Latorre Tableland <i>Plate CXXXIX.</i>	979
THE TABLELAND BETWEEN LAKE ARGENTINO AND RIVER VIZCACHAS	979
MORaine TO THE SOUTH-EAST OF RIVER VIZCACHAS	980
THE TABLELAND BETWEEN RIVER COILE AND RIVER SANTA CRUZ, to the West	981
PANORAMA FROM DOROTEA HILL <i>Plate CXL.</i>	983
THE EASTERN COAST OF DISAPPOINTMENT BAY, showing the Mountains of the Pre-Cordillera to the West of the Bay	983
MOUNT AYMOND, a point of the Line agreed to in 1881 in order to leave within Chilean Territory the Coasts of the Magellan Straits	988
MAP—ARGENTINE-CHILIAN BOUNDARY LINE, settled according to the Treaties of 1881 and 1893	990

List of Illustrations.

xlix

	PAGE
MAP—ARGENTINE PROPOSED BOUNDARY LINE IN THE NEIGHBOURHOOD OF PARALLEL 52°, according to the Treaty of 1893	991
SECTIONS No. 1 TO No. 100—23° S. LAT. TO 51° 45' S. LAT.	996-1038
PANORAMA FROM THE SOUTH OF VEGA DE LOS PATOS	<i>Plate CXLII.</i> 1047
MAP—FROM GENERAL MAP OF THE NORTH-WESTERN PART OF THE DOMINION OF CANADA. (Published by Authority of the Hon. Clifford Liffon, Minister of the Interior, December 1898)	1091

MAPS I. TO XIV. *In a Case*

Errata.

Frontispiece, *for* Fupungato *read* Tupungato

Page 4, line 19, *for* the Royal Order of 1693 addressed *read* the order addressed

4 „ 29, *for* Viceroy Vertiz *read* Viceroys Vertiz and Marqués de Loreto

11 „ 27, *for* years *read* months

12 „ 2, *for* says he came *read* came in 1551

27 „ 9, *for* This clear distinction *read* The definition of the Cordillera

69 „ 21, *for* southern *read* northern

184, 2nd line from foot, *for* 1880 *read* 1885

584, line 9, *for* 5703 *read* 5763. (The feet are rightly indicated.)

660 „ 10, *for* 4862 *read* 14,862

668 „ 3, *for* 7730 *read* 7130. (The feet are rightly indicated.)

683 „ 5, *for* 2075 metres (6808 feet) *read* 2156 metres (7073 feet)

706, 9th and 8th lines from foot, *for* 800 metres (2625 feet) *read* 797 metres (2615 feet)

752, 5th line from foot, *for* 781 metres (2562 feet) *read* 785 metres (2575 feet)

758, 3rd line from foot, *for* 1160 metres (3805 feet) *read* 1260 metres (4134 feet)

762, 9th line from foot, *for* 2400 metres (7874 feet) *read* 2600 metres (8530 feet)

808, line 5, *for* north *read* east

814, lines 17 and 18, *for* 1640 metres (5381 feet) *read* 1940 metres (6365 feet)

841, line 1, *for* 1800 metres (5906 feet) *read* 760 metres (2493 feet)

Page 842, 6th line from foot, *for* 1325 and 1270 metres (4347 and 4167 feet) *read* 1025 and 1240 metres (3362 and 4068 feet)

861, line 17, *for* Nirehuao *read* Ñirehuao

866, line 3, *for* 950 metres (3129 feet) *read* 1322 metres (4337 feet)

878, 7th line from foot, *for* 1096 metres (3596 feet) *read* 1296 metres (4252 feet)

920, line 7, *for* 2070 metres (6791 feet) *read* 2320 metres (7612 feet)

921, line 3, *for* 196 *read* 190. (The feet are rightly indicated.)

942, 7th line from foot, *for* 3250 metres (10,663 feet) *read* 3170 metres (10,400 feet)

942, 6th line from foot, *for* 2020 metres (6627 feet) *read* 2380 metres (7809 feet)

942, same line, *for* 2700 metres (8858 feet) *read* 2450 metres (8038 feet)

996, Section No. 1, and 11th and 5th lines from foot, *for* Zapalari *read* Sapalleri

998, Section No. 5, *for* 24° 30' *read* 24° 24'

999 „ „ 6, *for* Socompa *read* Socompa Carjis

1003 „ „ 14, *for* Amillaco *read* Anillaco

1005 „ „ 17, join lines indicating Mt. Toro

1006 „ „ 19 „ „ Mt. Tórtolas

1006 „ „ 20 „ „ Mt. Volcan

1008 „ „ 23 „ „ Mt. Pacon

1009 „ „ 26 „ „ Mt. Aconcagua

1013 „ „ 37 „ „ Mt. Payen

1016 „ „ 45 „ „ Mt. Lanin

Argentine-Chilian Boundary Arbitration.

DIVERGENCES IN THE CORDILLERA DE LOS ANDES.

ARGENTINE EVIDENCE.

CHAPTER I.

- Summary*—1. THE BOUNDARY DURING SPANISH COLONIAL PERIOD.
2. THE BOUNDARY AFTER THE EMANCIPATION.

1. THE BOUNDARY DURING SPANISH COLONIAL PERIOD.

THE Argentine Republic and Chile inherited from Spain the territories which they possess. The divergences upon which the Arbitrator is to decide are those which have arisen in tracing the *arcifinious* boundary in the Cordillera Nevada, by which Spain divided her two great southern Provinces of America.

The narrative of the first colonial utterances concerning this boundary is the more complete demonstration of the Argentine rights as well as of the inconsistency of the affirmations made in the Chilian statement with respect to it.

The Representative of Chile has stated to the Tribunal:—

“The year 1561 is the first occasion on which the authorities, dependent from the Crown of Spain, are known to have referred to the Cordillera of the Andes as a frontier in an official document. In the Deed of foundation of the City of Mendoza, when appointing its jurisdiction over the province of that name, Don Pedro del Castillo used the following words: ‘*A la cual doi por terminos i jurisdiccion con mero mixto imperio desde la Gran Cordillera Nevada, aguas vertientes a la mar del Norte.*’”

With this single document in view, the Chilian Representative has inferred that the rule observed during the colonial times was that of the continental

water-divide. A perusal of it suffices, however, to prove that it does not admit of such an interpretation. The Great Snowy Cordillera is the dividing line, and it is only starting from the said Cordillera that the jurisdiction alluded to in that document extended towards the Atlantic Ocean. It is impossible to contend that if it is spoken of the "Great Snowy Cordillera" as a primary boundary, the standard of demarcation allows of departing from the snowy crests in pursuit of a variable and movable frontier in the valleys or in the plains, or in pursuit of any other than the great and snow-capped Cordillera.

The Deed of foundation of the City of Mendoza was published in the Review of the Public Library of Buenos Aires,* conjointly with other official papers which explain and complete it. In order to discover its true spirit, it is well to consult all of the above documents, instead of allowing oneself to be influenced by one extract which has not the importance claimed for it.

If the Members of the Tribunal will examine these papers they will find that the streams have not been taken into account, and that chief importance has been given to the imposing mass of the Cordillera. On November 22, 1560, Don Garcia Hurtado de Mendoza, Captain-General of Chile, said that, "being informed that behind the Snowy Cordillera, back of the town of Santiago, forty leagues away, from east to west, has been discovered a province called Cuyo," he appointed Don Pedro del Castillo as its Governor. The Captain-General does not say that Cuyo is situated behind the continental water-divide: he states that it is behind the "Snowy Cordillera."

It was in this capacity that Governor del Castillo founded the City of Mendoza, "on the other side of the great Snowy Cordillera," where the Province of Cuyo was situated, as is stated in the same document that the Chilian Representative has quoted.

Furthermore, on September 27, 1561, the Captain-General of Chile appointed Don Juan Jufré new Governor of Cuyo, designating as the boundaries of his province "the slope of the Snowy Cordillera." Jufré changed the position of the town of Mendoza, gave it the name of "Resurreccion" and fixed the following limits:—

"On the north side, as far as the valley known as Guanacache, and through that region of the said valley downwards, and on the south side as far as the Diamante Valley, and on the east side as far as the Ridge which connects with the Sierra of Cayo Cauta, and on the west side as far as the *Snowy Cordillera*."

* Page 105, etc.

It is evident, therefore, that the Deed of foundation of Mendoza does not support the Chilian thesis, but on the contrary rejects it in the most formal and categorical manner.

But even were the document not as explicit as it is—even did it refer to the continental water-divide, and allude to rivers flowing to the two oceans, and to the divide of their water basins; even could all this be read into it, it would be hazardous to infer from a few words, taken from one single document, the criterion followed throughout a long period of almost three centuries. The following facts and quotations from the historical records of those centuries prove how erroneous would be such an inference.

The Chilian historian Don Miguel Luis Amunátegui* referring to the expedition of Diego de Almagro in A.D. 1535, states that the principal goal of his expedition was the country which extends to the western side of the Andes, and which should receive the name of Chile. The Inca Manco Capac, who was preparing his great rising against the Spanish conquerors, being desirous that Almagro's forces should undertake this expedition, and in order to induce him to do so, furnished him with the most exaggerated notions concerning the wealth which could be acquired on the western side of the Cordillera.

Almagro, having arrived at the "Provincia de Chile," after crossing the Cordillera de los Andes in the neighbourhood of Copiapó, undergoing the greatest privations on the journey, enquired of the "lords of the country," on the western side of the "Cordillera of the Snow (Cordillera de la Nieve) which continues to the strait," and which he had now crossed, whether he would be able to find land suitable for settlements, extending to the sea.

Thus, since the very first days of the discovery of Chile by the Spaniards, the eastern boundary of the country, first as a Province of Spain and afterwards as a Republic, has been the "Cordillera of the Snow," or the "Cordillera de los Andes."

The "Capitania General de Chile" had temporarily under its jurisdiction part of the "Provincia de Cuyo," as the inheritance of Pedro de Valdivia, who was authorised to govern "the other provinces which he might discover, conquer and occupy," but, as will be seen later on, according to the Kings of Spain, the historians, travellers and geographers, Chile, from the time of the conquest, has

* Miguel Luis Amunátegui, *La Cuestion de Límites entre Chile y la República Argentina*, Santiago, 1879, vol. 1, p. 81 et seq.

been bounded on the east by the crest of the Cordillera, and had no jurisdiction to the east of this range, after the province of Cuyo was separated from that country by decree of the Sovereign.

Numerous proofs that this was the case can be produced. Father Diego de Rosales, in his History of Chile * said, in 1665 :—

“The Kingdom of Chile is the southern end of the wide Empire of Perú, on the coast of the South Sea. . . . It is bounded on the south by the Strait of San Vicente or Lemaire . . . on the east by Tucuman, and on the west by the Pacific; but that portion of territory which is properly called Chile, and is inhabited, extends from the Valley of Copiapó, at lat. 26° S. to the city of Castro in the Archipelago of Chiloé, at lat. 43° S. On the east the ‘*great Cordillera Nevada de los Andes*’ girds it, and between this range and the sea, Chile’s greatest breadth is thirty leagues, and its average twenty.’”

The Royal decree of the King of Spain, by which the “Vireinato del Rio de la Plata” was constituted, ordered that the said natural boundary of the crest of the Cordillera de los Andes should be the frontier line between the great southern dependencies of the Crown. King Carlos III. in 1776, confirmed by said decree that of Charles II. (dated 1684) which stated that “The Cordillera Nevada was to divide the Kingdom of Chile from the provinces of the Rio de la Plata and Tucuman,” and also confirmed the Royal order of 1693 addressed to Soto-Mayor, Governor of Buenos Aires, instructing him to settle towns in Patagonia, “in the parts furthest inland, and in the lands in the interior.” He also confirmed the Royal order of 1766, in which Bucareli, the Governor of Buenos Aires, was informed that the whole southern region was under his supervision.

Subsequent and numerous Acts emanating from the Spanish Sovereigns or from the Governors of Buenos Aires and Chile, show that up to 1810 “the Cordillera Nevada,” that is, “the Cordillera of the Snow” of Diego de Almagro, separated the respective jurisdictions. Among other documents, the communications of the Presidents of the “Capitania General de Chile,” Don Ambrosio de Benavides in 1781, and Don Ambrosio O’Higgins in 1789, to Viceroy Vertiz, of Buenos Aires, show that the jurisdiction of Chile ended at the crest of the Cordillera.

That “Cordillera de Sierras,” so “rugged as to form an impassable barrier for the horses,” mentioned in the expedition sent by Diego de Almagro to explore the lands situated to the east, formed the most natural boundary

* Historia General del Reyno de Chile, etc., 3 vols., Valparaiso, 1887, vol. 1, book ii. chap. i. p. 183.

between the two territories, whilst the remarkably wild features of the range made it a specially secure frontier. It soon became manifest to the statesmen of that epoch, that owing to the ruggedness, loftiness, desolation and extent of the formidable chain of mountains, the administration of the "Province of Cuyo" by the authorities of Chile was rendered impracticable, and hindered at the same time the development of its commerce, which was then restricted to that captaincy-general. The situation was so difficult that the merchants themselves, who were only able to cross the Cordillera during a few months in the year, prayed the Mother Country to allow them to transact business with the east, that is to say with Buenos Aires. Such a state of things, which was only brought about by the special circumstances connected with the conquest and colonisation, could not last, and was entirely modified by the great change effected in 1776, when it was decided that the chain of the "Cordillera Nevada" should divide those interests that had developed in opposite directions. That division and that frontier were acknowledged by the administrative authorities on both sides of the Cordillera; they were afterwards equally recognised at the time of the Emancipation; and finally agreed upon by binding international treaties.

They are, however, those that the Chilean Expert now wishes to overthrow, and replace by a line inconsistent and unnatural, which would be certain to lead to the most serious consequences and complications.

2. THE BOUNDARY AFTER THE EMANCIPATION.

The proclamation of independence made by the Congress of Tucuman on July 9, 1816, emancipated from Spain the "Provincias Unidas del Rio de la Plata" or Argentine Republic, and in 1817 General San Martin crossed the Andes with an Argentine army, and descended into Chile, to free that country also from the Spaniards.

Since then both Chile and Argentine Republic have recognised the Cordillera de los Andes as their mutual and natural boundary, and the former country, after having gained independence, drew up a Constitution, which, amended from time to time, establishes the boundaries of the territories of the Republic in a clear and conclusive manner. The Constitution of 1822 says: "The territory of Chile is known by natural boundaries:—on the south, Cape

Horn; on the north, the Atacama Desert; on the east, the *Andes*; on the west, the Pacific Ocean." That of 1823: "The territory of Chile extends from north to south, from Cape Horn to the Atacama Desert; and from east to west, from the *Cordilleras de los Andes* to the Pacific Ocean." That of 1826: "The Chilean nation. . . . Its territory extends from north to south, from the Atacama Desert to Cape Horn, and from east to west, from the *Cordilleras de los Andes* to the Pacific Ocean." That of 1828: "Its territory extends from north to south, from the Atacama Desert to Cape Horn, and from east to west, from the *Cordilleras de los Andes* to the Pacific Ocean." That of 1833: "The territory of Chile extends from the Atacama Desert to Cape Horn, and from the *Cordilleras de los Andes* to the Pacific Ocean."

There is no possible doubt concerning this fact: Chile, by the will of her people, represented in Congress, framed a Constitution in which it is clearly established that the territory of Chile extends from the Atacama Desert to Cape Horn, and "from the *Cordilleras de los Andes* to the Pacific Ocean." Thus, THE WHOLE LINE OF THE CORDILLERA FROM ATACAMA TO CAPE HORN is acknowledged by Chile as its boundary, and only the territory comprised between the said Cordillera and the Pacific forms the Chilean nation. On the other side all the territory comprised between the Cordillera and the Atlantic belongs to the Argentine Republic.

No Chilean Constitution can be found which supports the contention of the Chilean Expert that Chile has a right to territory situated between the Cordillera and the Atlantic Ocean. The very contrary is established in an important document signed by Chile and the Argentine Republic. On November 30, 1826, a Treaty of friendship, alliance, commerce and navigation, was signed, in which it is provided as follows: "The contracting Republics engage to guarantee the integrity of their territories and to take action against every foreign power which shall attempt to change by force the boundaries of the said Republics, as recognised before their emancipation, or subsequently, in virtue of special treaties."

Chile in making this Treaty, evidently took into account her Constitutions of 1822, 1823 and 1826, which assigned as eastern boundary the Cordillera de los Andes.

According to the terms of this Treaty, and the wording of the Chilean Constitutions, only to the Argentine Republic could appertain the territories situated between the Cordillera de los Andes and the Atlantic Ocean down to Cape Horn.

The "Cordillera de los Andes," as a natural and recognised boundary, was not only established in Spanish and Chilian documents, but also in unimpeachable official reports, such as those from Messrs. C. A. Rodney, Theoderic Bland, John Graham and T. R. Poinsett, who were sent in 1817 by the Government of the United States to investigate and report on the state of matters in the South American countries, during the war for their independence. Their four reports agree in giving as the boundary between Chile and the Argentine Republic, "the Cordillera de los Andes," its "crests" or the "loftiest crest of the Cordillera of the Andes."

These Commissioners likewise considered that the United Provinces of Rio de la Plata, bounded on the west by the "ridge of the Andes," extended as far as Cape Horn; and in so considering them, they based their opinion not only upon history, but also upon the information received when amongst the peoples about whom they reported.*

* Reports of Messrs. Rodney, Graham, Bland, Poinsett, and Brackenridge:—

In his Report dated Washington, November 5, 1818, Mr. Rodney says: "In 1562, Chile was erected into a separate Captain-Generalship; in 1778, a new Viceroyalty was established at Buenos Aires comprehending all the Spanish possessions to the east of the Western Cordillera, and to the south of the river Marañon." He speaks always of the "late Viceroyalty of Buenos Aires," when referring to the United Provinces.

From the Report of John Graham, dated Washington, November 5, 1818:—"The country formerly known as the Viceroyalty of Buenos Aires, extending from the north-west sources of the river La Plata to the Southern Cape of America, and from the confines of Brazil and the Ocean to the *ridge of the Andes*, may be considered as that which is called 'The United Provinces of South America.'"

From the Report of Theoderic Bland, dated Baltimore, November 2, 1818: "The new Political Union, whose Government we found seated on the shores of the river Plata, which once styled itself 'The United Provinces of the River Plata,' and which now, having been actuated by caprice, or by more correct or more enlarged views, assumes the name of 'The United Provinces of South America,' has declared the independence, and claims the privileges of self-government for all the people, and the rights of a nation over all the territory of which the late Spanish Viceroyalty of Buenos Aires was composed in the beginning of the year 1810. . . . It will be proper, therefore, to trace out its extreme limits as the country relative to which our enquiries are to be more particularly directed. . . . The Spanish Viceroyalty of Buenos Aires is situated to the southward of the Portuguese dominions of Brazil, and according to the Treaty of St. Ildefonso, of 1777, the following boundary between them was finally adjusted: . . . thence, nearly west, to the Sierras Altisimas; thence, along the confines of the province of Mizque and the Altos Antinuyo, including the Province of La Paz, to the *Cordilleras of the Andes* which pass to the westward of Oruro and Paria, to the Cordillera Real; thence, south, *along the most elevated summit of the principal Cordillera of the Andes*, until it is intersected by the parallel of thirty-eight and a half degrees of south latitude; thence, due east to the Atlantic; thence, with the coast of the ocean, to the beginning, at Invernada de Felix José. . . . That tract of country which now forms the three provinces of Mendoza, San Juan and St. Louis, and which, under the Spanish Government, was called the province of Cuyo, was, about half a century ago, attached to the Colonial Viceroyalty of Chile; since that time it has continually belonged to Buenos Aires. . . . And the province of Arica, which covers that space to the westward of Potosi and Chicas from the *summit of the Andes* down to the Pacific Ocean, was, by a royal order, about the year 1774 taken from the Viceroyalty of Buenos Aires, and annexed to that of Lower Perú, or Lima, and is at present under that jurisdiction."

From the Report of J. R. Poinsett, dated Columbia, November 4, 1818: "The kingdom of Chile is comprised within the narrow strip of land which extends east and west from the *summit of the Cordilleras de los*

These were the boundaries which Chile recognised as those of the United Provinces of the River Plate, when making the Treaty of 1826.

Moreover, there is another document whose importance cannot be disregarded. It is the Treaty made by Chile with Spain on July 1, 1846, in which Chilean independence was recognised and the transfer made to Chile of the territories previously belonging to Spain.

The first article of the Treaty says:—

“His Catholic Majesty, in the exercise of the power which belongs to him by decree of the General Cortes of the Kingdom, of December 4, 1836, recognises as a free, sovereign and independent nation, the Republic of Chile, composed of the *countries specified in its Constitutional Act, to wit: All the territory which extends from the Desert of Atacama to Cape Horn, and from the Cordillera de los Andes to the Pacific Ocean, with the Archipelago of Chiloé, and of the islands adjacent to the coast of Chile.*”

This Treaty was approved by the Chilean Congress, who, in enacting the clause establishing the boundary in the Cordillera, acknowledged, in a document of such great historical importance, the traditional frontier of the country.

Thus Spain only granted to Chile the territories between the Cordillera de los Andes and the Pacific Ocean, and from the Desert of Atacama to Cape

Andes to the Pacific Ocean, and stretches along the coast north and south, from the river Salado and the Desert of Atacama to the Straits of Magellan. From the chain of frontier posts (which begin at Arauco, on the coast, and extend to the Cordilleras) to the town of Valdivia, the country is in possession of the warlike tribe of Araucanians, who still remain independent; and from Osorno, south, it is inhabited by the various tribes of Patagonia, whose territories have not been explored.”

Mr. H. M. Brackenridge, in his Voyage to South America, performed by order of the American Government in the years 1817 and 1818, in the frigate *Congress*, London, 1820, says: “The country formerly known as the Viceroyalty of Buenos Aires, extending from the north-western sources of the river La Plata to the Southern Cape of America, and from the confines of Brazil and the Ocean to the *ridge of the Andes*, may be considered as that which is called ‘The United Provinces of South America.’ . . . This widely extended country embraces almost every variety of climate and soil, and is capable of almost every variety of production. A large part of it, however, particularly on the west side of the river La Plata and southerly towards Cape Horn, is deficient in wood (even for fuel), and in water—that which is found is generally brackish. (Vol. 1, App., pp. 29–30.) Including Patagonia, the Viceroyalty of La Plata was the most important in extent of territory of any of the Spanish Governments in America. . . . La Plata stretches from the northernmost part of the Province of Moxos in twelve degrees south to Cape Horn, its extent to the Pacific between Lower Perú and Chile, in the Province of Atacama; it is bounded by the Portuguese dominions on the north and east, and separated from Perú by the river Desaguadero or drain of Lake Titicaca: on the east it is washed by the Atlantic *and on the west separated from Chile by the Cordilleras*. The only portion of this vast territory which is generally believed to be unfavourable to a numerous population, is what is called the Pampas of Buenos Aires; *the interior of Patagonia* is but little known, and respecting it different opinions are entertained. . . . In glancing at the map of this country, it will appear to be naturally divided into six different sections: 1. The part which lies on the east side of the Paraguay. 2. That which lies opposite on the west side of the same river. 3. *The tract which stretches along the base of the Cordilleras*. 4. The Pampas of Buenos Aires. 5. Patagonia. 6. The provinces of Upper Perú.” (Vol. 2, pp. 1 and 3.)

Horn. It is not, therefore, from Spain that Chile derives the alleged right to encroach over the Cordillera Nevada, or the Cordillera de los Andes, as would be the case should the line proposed by the Chilian Expert be accepted; and since it is not from Spain that this alleged right is derived, there exists no foundation whatever upon which the claim to territory east of the range can be based. Whatever may be the extent of country claimed by Chile eastward of the Cordillera, it will be an usurpation of Argentine land, recognised as Argentine land by the Treaty of 1826 and successively by the Treaties of 1881 and 1893, where the "Cordillera de los Andes" is always spoken of as the frontier line from north to south to parallel 52°.

These are the antecedents, and they prove that at the time of the Emancipation of both countries, there was a clearly defined boundary recognised by Chile and the Argentine Republic as their natural frontier.

The Argentine Republic had from the beginning of her new life, and as the seal of her independence, devoted attention to the regions of the south, adopting a series of measures in defence of her sovereignty to the east of the summit of the Cordillera de los Andes, and for her future benefit and progress; but the unfortunate condition in which the country found itself after its independence was secured, resulting from the struggle through which it had passed in its efforts to separate from the Mother Country, and to obtain equal independence for all Spanish-speaking people south of the Equator—a struggle which no new country could sustain without seriously suffering from its effects—did not admit of special attention being paid to the delimitation of its frontiers. The nation, however, had confidence in the indisputable validity of its titles inherited from Spain.

CHAPTER II.

- Summary*—1. NECESSITY OF STATING WHAT WAS UNDERSTOOD AS “CORDILLERA DE LOS ANDES.”
2. MEANING OF THE “CORDILLERA DE LOS ANDES” IN THE COLONIAL EPOCH.
 3. RESULTS DERIVED FROM THE DOCUMENTS QUOTED.

1. NECESSITY OF STATING WHAT WAS UNDERSTOOD AS “CORDILLERA DE LOS ANDES.”

THE evidence already presented, proves that both the Argentine and the Chilean Governments agreed that the “Cordillera de los Andes” is the dividing line between the two nations.

These words “Cordillera de los Andes” have a history of their own in the Argentine Republic and in Chile, and they also express a scientific idea which it is now most important to understand clearly, as all the treaties and agreements between the Argentine and Chilean Republics determine that the frontier line shall be traced in the “*Cordillera de los Andes*,” and that the differences of opinion between the Experts must be confined to matters within the “Cordillera de los Andes” (*Art. 2nd, Prot. 1893*). As, moreover, the Argentine Expert maintains that the boundary line proposed by the Chilean Expert in some points lies outside of the Cordillera de los Andes, it is necessary to know what is understood by that term. Further, in order that the Tribunal may be able to advise with regard to the differences which have been submitted to them, it is indispensable that it should know what was the conception of this Cordillera held by the Government of the Argentine Republic and that of Chile, when they decided to fix the separating line between their nations in its summit.

To make this point clear, the evidence on the subject will be divided as follows:—

1. Evidence belonging to the colonial epoch from its commencement to 1810.
2. Evidence dating from 1810.
3. Evidence referring to official definitions made before 1881.

There exists an exceedingly large amount of documents which determine the dividing line to be the summit of the chain, first relating to the colonial period up to 1810, and later on up to 1881. In that immense number of documents there are frequent repetitions, and many of them are of comparatively small importance, but, among those laid before the Tribunal, there will be found doubtless sufficient material to form an opinion as to what was understood as to this subject by the Argentine and Chilian statesmen, when they accepted Articles 1 and 2 of the Treaty of 1881.

These documents at the same time throw light on the error into which the Chilian Expert has fallen in proposing, as he has done, to fix certain landmarks of the boundary line outside the Cordillera which the Argentine Expert was compelled to reject—an error which has caused the former to abandon a historic boundary line, formerly agreed upon, and to look for a line most irreconcilable with the physical conditions of the country, and with political interests, as it is generally recognised that the frontier between countries should be drawn over points which permit of easy defence, without giving rise to perpetual difficulties between the countries concerned.

2. MEANING OF THE "CORDILLERA DE LOS ANDES" IN THE COLONIAL EPOCH.

It has been already said that Chile, properly so-called, occupied the region situated between the Cordillera and the Pacific Ocean, during the Spanish dominion.

Diego de Almagro, to reach "the Province of Chile," crossed the Cordillera. To the east of that Cordillera of snow there existed other lands which were not "Chile," lands which formed "a province called Cuyo" for which Don Garcia Hurtado de Mendoza, Captain-General of Chile, appointed as Governor, in 1560, Don Pedro del Castillo, the founder, a few years later, of the city of Mendoza, "*on the other side of the great Cordillera Nevada.*"

From those times the great chain begins to appear in official documents, in historical records, and on maps.

In 1561 the same Captain-General appointed Juan Infré, as new Governor of Cuyo, indicating the boundaries of his government by "*the slope of the Cordillera Nevada.*"

After crossing the Cordillera and proceeding further, Pedro de Valdivia says he came to the "towns in the valley of Mariquina," where he halted upon receiving intelligence that Francisco de Villagrán was bringing 180 men from Perú to relieve him. In his march he had discovered several populous provinces, till he came to the *Cordillera or long ridge of snowy mountains, which divide the Provinces of Chile* from the rest he had before discovered, and had crossed those mountains where he lost many of his Indians through excessive cold.*

From this place, Valdivia despatched an expedition to continue the discoveries as far as the lake now called Valdivia, and having received a special account of the results of the investigations, he sent Geronimo de Alderete "*towards the snowy mountains*, who, having sent the Governor a report of all he had discovered, founded the Colony of Ciudad Rica, at the foot of the aforesaid snowy mountains, and erected a fort, in which he placed a garrison." †

Not long after the year 1579, the Cabildo of the City of Santiago, in a memorial to the Governor of Chile, Don Rodrigo de Quiroga, said:—

"This Kingdom of Chile has, to a breadth of twenty leagues, a little more or less, for boundary on the side where the sun rises *a very lofty snowy Cordillera* (Cordillera Nevada); and on the other side, the South Sea; almost the whole coast goes north and south as far as the Strait of Magellan." ‡

Luis Tribaldos de Toledo, "Chief Chronicler of the Indies," one of the first historians of Chile, defined thus that country:—

"Description or position of the Kingdom of Chile . . . its breadth, from where it commences in the extreme end of Atacama to where its length finally terminates, is not more than some thirty leagues; as, from its western side, it is hemmed in by the Southern Sea, and on the *eastern side it is confined by a snow-covered Cordillera and mountain range*, it being impossible to traverse it in many places except in the same north to south route. *On the other (east) side of these Sierras—the eastern part—is Paraguay* and Tucuman; and lower down, towards the Strait are Césares, and Patagonians or Gigantes, territories which have still to be conquered."

"The site of the City of Castro, situated in lat. 45° S., and its Archipelago in lat. 47°, is the point *in which the boundaries and jurisdiction of the Chilean Kingdom and Provinces terminate.*" §

* Antonio de Herrera, *Historia de los hechos de los Castellanos*, etc., Madrid, 1609; translated, London, 1726, vol. 6, p. 317.

† Same work, p. 318.

‡ Archivo de Indias, num. 284. A. Bermejo, *La Cuestion chilena y el Arbitraje*, Buenos Aires, 1879, p. 67.

§ Vista general de las continuas guerras: difícil conquista del gran Reino, Provincias de Chile. *Historiadores de Chile*, Santiago, 1862 (vol. 4).

Alonso de Góngora Marmolejo* says that in 1575 Chile had the same limit:—

"The Kingdom of Chile and its territory is like the scabbard of a sword, narrow and long. On one side of it is the Southern Sea, *and on the other, the Cordillera Nevada, which continues throughout its entire length*, in some parts sixteen leagues, and in others eighteen, and twenty in its widest part, and so on, more or less. The Cordillera is snow-covered during the entire year, and is as bold in appearance as that which separates Italy from France."

Don Pedro de Córdoba y Figueroa † wrote :—

"Chile is situated in South America, extending from latitude twenty . . . degrees in the tropic of Capricorn to forty . . . degrees towards the Antarctic pole; measuring about 500 leagues from south to north, not by that number of degrees, but taking into consideration the inflections of the ground between its extremities. It is of unequal width, varying between forty and thirty leagues and less, from east to west. This irregularity accounts for the Cordillera being further from the sea in some parts and nearer to it in others. Entrance into Chile is difficult; the entry from the north is through an extensive sandy desert, where water is scarce and unpleasant. On the south, the Chiloe Channel, which separates that island from the Kingdom, is rough and has very strong tidal currents similar to the Euripus, which was so fatal to Aristotle. *On the east is the famous Cordillera, only passable during six months of the year, and inaccessible during the remainder, owing to the heavy snow, terrible even to look at.* On the west, the Southern Sea."

Don Miguel de Olavarria, in 1594, determined the limits of Chile as follows :—

"The territory and provinces of Chile are those which are included between Copiapó and the Island of Chiloe, from north to south latitude, and in longitude *from the main highest snow-covered Cordillera which runs to the Southern Sea*, fifteen leagues in breadth, the said Cordillera *forming a wall and boundary between the Chilean Indians and the great number living between it and the Northern Sea*; it extends continuously to the Magellan Straits." ‡

(It is important to call attention to the fact that the Indians, here mentioned as established in the year 1594 on the east of the Cordillera, which range was *already considered as a wall and boundary between these*

* Historia de Chile desde su descubrimiento hasta el año de 1575. Historiadores de Chile, Santiago, 1862.

† Historia de Chile. Historiadores de Chile, Santiago, 1862. The geographer, Señor Asta Buruaga, says that this historian is worthy of credit, owing to his position, antecedents and the documents which he had at his disposal. Apud Quesada, La Patagonia y las tierras australes, Buenos Aires, 1875, p. 724.

‡ The Southern Sea is the Pacific: the Atlantic was called the Northern Sea. Informe sobre el Reino de Chile, sus indios y guerras, in Claudio Gay, Historia Natural y Política de Chile, Documents, vol. 2, p. 13, Paris, 1852.

Indians and those of the South Sea (Pacific Ocean), were never fought against or disturbed by the Chilian army, and that they were subdued and dispersed by the Argentine army at the time when the 1881 Treaty was signed.)

In his *Descripción del Reino de Chile*,* Alonso Gonzalez de Nájera, who resided in Chile from 1598 to 1607, has said:—

“That Kingdom (Chile) is one of those of Perú, which lies on the western side of its most western part. *It is of a long and narrow form, having a north to south direction, enclosed between the same Southern Sea, of which it forms the coast, and a very lofty range of mountains which, in that country, our people call the great snow-covered Cordillera, which on the eastern side of all that Kingdom constitutes an impregnable wall*, the distance or space between it and the said Southern Sea being so equal in its proportions that an *imaginary line drawn along the coast, and another along the Cordillera would be very nearly parallel*, although in maps and special descriptions which have been printed, owing to the little information possessed with reference to that country, it is described as being more unequal. The space between one and the other line does not exceed twenty leagues, which is its average breadth, its length being more than 500.”

In a report from Lorenzo del Salto to the Consejo de Indias in 1609, it is said:—

“The Kingdom and Province of Chile consist of a strip of land to the length (where Spaniards live) of 300 leagues, with the breadth of, in places, fifteen, twenty and twenty-five leagues. On one side, which they call that of the coast, the South Sea bounds it, and on the other, in the direction of the Governments of Tucuman and Paraguay and of Perú, the great Cordillera Nevada is the boundary.” †

Alonso de Ovalle, in his *Historica Relacion del Reino de Chile, y de las Misiones y Ministerios en él* (Rome, 1646), writes:—

“The Kingdom of Chile, the extreme portion of South America, which, on the north, is contiguous to Perú, commences in lat. 25° S. towards the Antarctic pole, passing through the Tropic of Capricorn; having a length of 500 leagues down to the Strait of Magellan, which is situated in lat. 54° S., and the country called Tierra del Fuego, which is to the south of the said strait, descending to lat. 59° S. Its jurisdiction extends over a breadth of 150 leagues from east to west, for although the broadest part *of what is properly called Chile, does not exceed the twenty to thirty leagues which exist between the sea and the famous snow-covered Cordillera*, of which we shall speak in the proper place, yet, in the divisions made of the limits and jurisdiction of the Western Indies, the King included the extensive *Province of Cuyo which, similar in length with those of Chile, is double their width*” (p. 1). . . . According to this, we may divide this kingdom into three parts. The first and principal,

* In Colección de Documentos inéditos para la Historia de España, por los Señores Marqués de Miraflores y Don Miguel Salvá, Madrid, 1866.

† Vicente, G. Quesada, *La Patagonia y las tierras australes*, Buenos Aires, 1875, p. 550.

that which is comprised between the snow-covered Cordillera and the Southern Sea, which is properly called Chile . . . and the third that which contains the Cuyo Province which is on the other side of the Cordillera, and extends to the same strait, and in breadth to the borders of Tucumán" (p. 2).

Defining what he means by Cordillera, Ovalle adds:—

"This is what this author (Antonio Herrera) and others, who treat of the affairs of the Indians, think of the Cordillera; I shall tell now what I know and have seen in it. And, first, I suppose that although these two ranges, as we have said, run separate and distinct from one another through the whole of Perú and Quito, they must go on approaching and uniting more and more, as they go on rising to greater height, because when they reach Chile, they are no longer two, but one; this is what travellers clearly observe when crossing this Cordillera to go from Chile to Cuyo, as I have done myself on many occasions. When I have passed the range I have not seen this division, but continuous and perpetual mountains which on one side and the other serve for walls, barbicans, and antemural fortifications, *in the midst of which rises one range higher than the rest, and it is that which is most properly called 'the Cordillera.'* This is so great that we spend three or four days in ascending to the highest crest and as many in the descent on the other side; this is strictly speaking, what we call "*Cordillera.*" Then, the immense quantity of snow which falls in winter makes this Cordillera appear very beautiful. The snow is often so abundant that, in these mountains which are so lofty and so wide, and are forty leagues in diameter, there is no part of them which is not covered with snow, which is, in some places, several lances in depth. I do not know what occurs on the loftiest part of the crest, *which we most properly call 'Cordillera.'*"

Diego de Rosales, writing in 1665, states:—

"The Kingdom of Chile is the southern end of the wide empire of Perú on the coast of the South Sea. It extends, past the Tropic of Capricorn, to a breadth of $682\frac{1}{2}$ leagues and stretches from lat. 26° S. to lat. 55° S. It stretches from east to west for a distance of 550 leagues, including the provinces of Cuyo beyond the mountains. It is bounded on the north by the desert of Atacama and the countries of the Diaguitas Indians, not very far from the mines of Potosí; on the south, by the Strait of San Vicente or Lemaire, higher up than the Strait of Magellan; on the east it is bounded by the plains of Tucumán, which spread for about 300 leagues to that part where the great river La Plata flows to the Atlantic; on the west, by the South Sea, the extent of which is not definitely known. Such are the situation and the boundaries of the kingdom of Chile (Province of Cuyo included), according to the district and jurisdiction of its Government and Royal Chancellery; but that which is properly called Chile, and is inhabited, extends from the valley of Copiapó, in lat. 26° S., to the city of Castro, in the Archipelago of Chiloé in lat. 43° S. Beyond this there are no Spaniards living, but only various tribes of heathen Indians, who are in a barbarous condition. . . . On the eastern side '*the Great Cordillera Nevada de los Andes*' girds it, and between it and the sea its greatest breadth is thirty leagues, and the average about twenty. Another mountain range, although not so lofty, rises near the coast, from which may be seen secure ports and peaceful open bays. The

fertile part of Chile, then, being shut in by these two cordilleras, forms a wide valley in which have happened things worthy of memory for posterity, and able to give pleasure and instruction to those now living. The length of this wide valley, the whole of which is inhabited by Indians, from Copiapó to the city of Castro, is 300 leagues." *

Don Alonzo de Solorzano y Velasco wrote, in 1637:—

"This kingdom of Chile, the end and termination of South America, touches Perú on the north, extends from lat. 25° S. towards the Antarctic pole, passing through the Tropic of Capricorn, and has a length of 500 leagues to the Strait of Magellan, which is situated in lat. 50° S. It has jurisdiction over 150 leagues from east to west, although the widest part of what is *properly* called Chile does not exceed twenty to thirty leagues, *which are those parts comprised between the sea and the snow-covered Cordillera* (the Province of Chyo being included in the first mentioned breadth). It is a broken and mountainous country, with voluminous rivers, where it rains during the greater part of the year." †

Speaking of the great Cordillera Nevada, and of the diversity of its temperature, he adds:—

"*The Cordillera of Chile* is a wall of superb mountains which rise one above another, in such a manner that the first serves as a ladder or step to the second, until they rise higher than the clouds, and overlook not only all the region of Chile itself, but also that of Tucuman. The mountain range, owing to its height, and the snow which always crowns it, is seen from a distance of more than fifty leagues, and serves as a guide for travellers by land, and for those who sail the sea, and in comparison with it, the Alps, the Pyrenees, and the Apennines of Italy, and other giants of superb magnitude, are mere pigmies."

He also says:—

"On many lofty mountains the snow continues all the year, and on others it melts half the year, and in flowing away it passes through very wide valleys. In Villarica there is a valley of thirty leagues in length, by which the whole of the Cordillera is crossed by a level road, and near the end of it is a hill of no more than half a league, and there is another on the side of the pampas and plains which extend to Buenos Aires. To cross the Cordillera from Santiago to Mendoza the road is not so easy, as from the *Valley of Aconcagua* it begins to ascend very lofty Cordilleras and mountains, so that, on arriving at the top to cross the '*Cordillera*,' one finds oneself many leagues above the clouds, and the air is so rarefied that it impedes and shortens respiration, and causes sickness. From here, in Southern Chile, to the straits, 'the Cordillera' is inclined to one side, approaching the sea, and is divided into an infinite number of islands, which form the Chiloé and Chonos Archipelagoes. In the former, Spaniards and Indians live; in the second, Indians only. The country is in places uninhabitable, on account of the immense snow of the Cordillera and the marshes, which render it barren of pastures for cattle, and the continual moistness and rain destroying the fruit crops. The rivers have a short course, on account

* From *Historia General de el Reyno de Chile*, etc., por el R. P. Diego de Rosales, 3 vols., Valparaiso, 1877.

† Don Alonso de Solorzano y Velasco, *Informe sobre las cosas de Chile*. Gay, vol. 2, p. 422.

of the sea being so near, and might rather be called *waterfalls than rivers*, and are little known. Navigators and cosmographers, however, have named some of the principal of them—as the Rio Los Rabudos. The other rivers which proceed in sequence from Los Rabudos are: Rio de los Mártires, Rio de los Gigantes (so named because there Indians of gigantic stature and giants of enormous size were seen), Rio de la Campana, Rio de los Pájaros, and Rio de San Victoriano, most of which are not navigable on account of the intricate labyrinth of islands, reefs, sandbanks, channels, currents in the sea, currents in the rivers, and perpetual swelling of the tempestuous seas."

Don Jorge Juan and Don Antonio de Ulloa in their *Relación Histórica del Viaje á la América Meridional* hecho de orden de S. M., etc., state:—

"That which in rigid exactness should be considered as being the extent of this kingdom (that of Chile), limiting ourselves to that part thereof which is inhabited by the Spanish, is from Copiapó to the great island of Chiloé, whose southern extremity is in lat. 44°, and from *west to east* that part which lies between the '*lofty Cordillera*' and the coast of the Southern Sea, that is to say about thirty leagues." *

Father Pedro Lozano † defines Chile thus:—

"This kingdom commences in lat. 25° S., towards the Antarectic pole, passes through the Tropic of Capricorn, having a north to south length of more than 500 leagues to its termination at the extreme end of the American continent, i.e. the Strait of Magellan, situated in lat. 52° S. Its east to west breadth attains thirty leagues, though in parts it is only twenty, *which is the case in those parts lying between the Pacific Ocean and the famous CORDILLERA NEVADA*; as, although in the division of the limits and jurisdiction of the Western Indies fixed by command of our Catholic Sovereigns, the Government of Chile included the *extensive Province of Cuyo*, which on the other side of the *Cordillera*, together with Tucuman, runs parallel thereto, and is more than double its breadth, nevertheless, what we properly call Chile, is the territory *which is included between the western part of the Cordillera* and the Southern Sea."

Afterwards he adds —

"And it is the '*famous Cordillera*' which constitutes for it, on the western portion, a wall of such lofty dimensions." ‡

Father Miguel de Olivares gave also as limits of Chile the Cordillera. He wrote in 1758:—

"It extends from Mount San Benito in lat. 22° S. (and is the boundary between the utmost limit of Chile and Atacama, the first province of Perú in this part) down to

* Madrid, 1748, pp. 336, 337.

† Historia de la Compañía de Jesús en la Provincia del Paraguay, Madrid 1754.

‡ Ibid., p. 136.

Cape Horn, situated in lat. 56° S.; thus giving it a length of thirty-four degrees, which, at the rate of twenty leagues, gives 660; and is the length of this Kingdom from north to south, *between the coasts of the Pacific Ocean and the Cordillera Real de los Andes*. Its breadth, without at present mentioning the Cuyo provinces, is from thirty to forty leagues *from the said western shores to the said great Sierra, which on the east, extending along the whole of Perú, continues for 1500 leagues until it buries itself in the sea.*"

He added;—

"In the direction of which we have spoken, towards the region of the tropic, all the hills of that '*Cordillera*' are less agreeable and cool, but of greater wealth in every kind of minerals, especially silver; but in a southerly direction the opposite is the case, still that region is not altogether without gold, silver, copper, iron, tin, lead, but the veins are thinner, and not so continuous as they are in the other region; nevertheless, the climate is more agreeable, and the slopes of both sides of the '*Cordillera*,' dividing into many branches, form very capacious valleys, which are clothed with all kinds of herbs, and provided with abundance of fresh, clear water, on which there are produced and fattened many herds of cattle. The mountains of the Sierra, by dividing lengthwise, form valleys and plains of great extent, in which can be maintained larger herds than on the mountain skirts. The departments of Maule, Chillán and the Laja enjoy this benefit, according to their respective districts, but those of the Chillán do not have the enjoyment of the beautiful lands of their '*Cordillera*' without the very serious danger of robberies by the Peguenche Indians. These wander about in the neighbourhood of the city of Chillán, after crossing the Cordillera, for '*this Cordillera*' although divided into so many branches, is less elevated and more easily accessible, *and the cattle lands which are in the centre of it are of doubtful ownership owing to their being so easily reached from either side*. The Spaniards could pass to the lands of the Indians when they pleased, on account of their frontiers being undefended, since, being without any political or military government, they had no soldiers to guard the passes *from the Cordillera to their lands*. The Spaniards, on the contrary, maintain in these pasture-grounds continually a garrison able to prevent the crossing of an enemy.*

The attention of the Tribunal is directed to the facts revealed in the passage just quoted. They are very important, as they show that the sometimes rather easy crossing of the passes of the Cordillera in summer in the central part, *forced the Spaniards to maintain continually a garrison, capable of preventing the crossing of an enemy*.

From this fact two conclusions are derived: (1) the Chilean Spaniards never went to the lands east of the Cordillera, having their garrisons at the western side

* Historia Militar, Civil y Sagrada de Chile. In Colección de Historiadores de Chile y Documentos relativos á la Historia Nacional, Santiago, 1862.

of the passes; (2) the Spaniards then, as the Argentines now, considered the "Cordillera" as the natural bulwark for easy defence against an enemy.

In continuation of the historical evidence of the Colonial epoch, the following may be added:—

Don Alonso de Sotomayor, President of Chile, stated that, "The Cordilleras Nevadas separate the Provinces of Paraguay and Chile."

In the Real Cedula issued by Carlos II., May 21, 1684, it is stated that—

"Father Nicholas Mascardi, when traversing the mountain regions of Chile and the coasts of the South Sea, to bring to the knowledge of the Faith the many infidels who inhabit these regions, is to make an excursion to the *Cordillera Nevada* which divides Chile from those provinces and from Tucuman."*

Don Francisco Caro de Torres, in his Report on the Services of Don Alonzo de Sotomayor, tells us that—

"The said Don Alonzo landed with his men in the port of Buenos Aires, which they call Río de la Plata, where he found himself without supplies of food for his men, and the authorities there gave him no assistance, nor had they the means to. . . . He purchased what was necessary for the support of his men, whom he led through uninhabited districts and deserts, through which not a single traveller had passed, traversing the snow-covered Cordilleras which separate the Provinces of Paraguay and Chile."†

José Perez Garcia, who wrote his History of the Kingdom of Chile in 1778, says ‡:—

"The Kingdom of Chile is a rich country of America; exceeding all the other parts of it in the various advantages with which it is endowed. It is situated in its southern part which extends furthest towards the South Pole. *It consists of a narrow strip between the sea and the Cordillera*, and is surrounded on both sides and at all points. *Its walls are natural, but remarkable*, and, while *affording protection on both sides*, also ornament, fertilise and enrich it. Its northern part touches Perú, at the river Salado, in lat. 26° S., in the Atacama Pass, and the southern is washed by the boisterous waters around Cape Horn in lat. 56° S. Its western coast, situated in long. 304°, borders the Southern Sea . . . and its eastern side is guarded by the lofty snow-covered Cordillera. . . ." (Book i. chap. i.) "On the east Chile reaches the crest of the Cordillera."

Of the Province of Colchagua, he says: "It was bounded on the east by the crest of the Cordillera"; and states that the district of Maule was bounded on

* Memoria Histórica sobre los Derechos de soberanía y dominio de la Confederacion Argentina, por Pedro de Angelis, 1852, Buenos Aires.

† Historiadores de Chile, Santiago, 1862, vol. 4, p. 47.

‡ Don José Perez Garcia, Historia Natural, Militar, Civil y Sagrada del Reino de Chile (its discovery, conquest, government, population, gospel preaching, cathedral-building and pacification), 1778. MS. in the Library of Buenos Aires.)

the east *by the crest of the Cordillera*; that the province of Cauquenes was bounded on the east *by the crest of the Cordillera*; that of Chillán was bounded on the east *by the crest of the Cordillera*; and that to the province of Concepcion, Valdivia assigned as boundaries from the sea on the west, *to the crest of the Cordillera* on the east.

It should be mentioned to the Tribunal that almost the same, or a very similar expression, "crest of the Cordillera," is at present employed in the official language of the Chilian documents, when fixing the boundaries of the corresponding provinces.

Don Joaquin de Villarreal was commissioned by the Spanish Sovereign to study the means of reducing the Indians of Chile to submission, and in 1752 produced an official Report, to which the Sovereign frequently alluded when the defence of the frontiers was referred to, and this Report is mentioned in the Royal Order of February 20, 1795. Villarreal wrote concerning the boundaries of Chile in the following terms:—

"Your Majesty commanded me to examine the despatch which you have deigned to forward to me, *consisting of various documents emanating from the kingdom of Chile*. . . . The kingdom of Chile," he proceeds to say, "in so far as the present question is concerned, is a country which borders Perú on the north, at the end of the desert in the province of Atacama; and is bounded on the south by the Chiloé Sea; *on the east by the snow-covered Cordillera*; and on the west by the Southern Sea; it has a north to south length of 340 leagues of twenty degrees. Its breadth, from east to west, *or from the sea to the Cordillera*, is irregular; but, *according to the despatch*, it is thirty-six leagues in lat. 27° , and forty-five leagues in lat. 37° —as measured on the map and plan sent by the President (of Chile) in the letter of April 28, 1739—and on the general maps it is shown to be the same or greater in the other parts of the kingdom. . . . The kingdom is divided into two parts: that which is inhabited by the Spaniards, and that which is occupied by the rebellious Indians. In the first, which measures 240 leagues from north to south from lat. 25° to 37° S., I infer that the breadth, in a straight line, between the sea and the '*Cordillera*' does not exceed thirty leagues in lat. 27° , nor forty in lat. 37° *From these data it can be seen that the kingdom is a quadrilateral strip of territory, having a length of 340 leagues, and enclosed between the sea and the snow-covered Cordillera.*"

In *El Viajero Universal ó noticia del Mundo Antiguo y Moderno* (Madrid, 1798), it is stated that—

"The kingdom of Chile lies along the coast of the Pacific Ocean, extending for the distance of 420 leagues between lat. 24° and lat. 45° S. Its width, between long. 304° to long. 308° , the former meridian being reckoned from Ferro Island, is more or less extensive in proportion as *the Cordillera de los Andes which bounds it on the east approaches*

or recedes from the said ocean, or, more properly speaking, in proportion as the ocean approaches or recedes from the said chain of mountains. . . . This country is bounded on the west by the Pacific Ocean, on the north by Perú, on the east by Tucuman, Cuyo and Patagonia, and on the south by the Magellan territories. The main Cordillera, which, as we have said, *bounds it on the east*, also completely separates it, either by itself or by its branches, from all those regions, constituting in itself, at the same time, *an impregnable barrier on the continental side*, while the ocean defends it on the western."

Molina,* speaking on the territory of Chile, says:—

"Its length is estimated as 1260 geographical miles, but it varies in breadth as the great range of mountains, called the 'Cordillera of the Andes,' approach or recede from the sea; or, to speak with more precision, as the sea approaches or retires from those mountains."

He adds further on:—

"Section 1. *Limits.* Chile is bounded upon the west by the Pacific Ocean, on the north by Perú, on the east by Tucuman, Cuyo and Patagonia, and on the south by the land of Magellan. It is separated from all these countries by the *Cordilleras, which form an insurmountable barrier on the land side*, while the sea renders it secure upon that quarter. *The few roads which lead to Chile from the neighbouring provinces are impassable, except in summer, and are so narrow and dangerous that a man on horseback can with difficulty pass them.* The extent which modern geographers assign to Chile is much greater than that which the inhabitants allow it; the former usually comprehend within it, Cuyo, Patagonia and the land of Magellan. But these countries *are not only separated from it by natural limits, but their climate and productions differ; their inhabitants have countenances totally unlike the Chilians, and their language and customs have no resemblance.* Although the principal mountain of the Cordilleras is the natural termination of Chile to the east, I comprehend within its confines not only the western valleys of that mountain as necessarily attached to it, but also the eastern, as, *though not comprised within its natural limits, having been occupied by Chilian colonies from time immemorial.* The Andes, which are considered as the loftiest mountains in the world, cross the whole continent of America, in a direction from south to north; for I consider the mountains in North America as only a continuation of the 'Cordilleras.' The part that appertains to Chile may be 120 miles in breadth. It consists of a great number of mountains, all of them of prodigious height, which appear to be chained to each other; and where nature displays all the beauties and all the horrors of the most picturesque situations. The interior structure of the Andes everywhere exhibits a very varied origin, and appears to be coeval with the creation of the world. This immense mountain, rising abruptly, forms but a small angle with its base; its general shape is that of a pyramid, crowned at intervals with conical and, as it were, crystalline elevations. It is composed of primitive rocks of quartz, of an enormous size, and almost uniform configuration, containing no marine substances which abound in the secondary

* Molina's (the Abbé Don J. Ignacio) History of Chile, in two vols., London, 1809, vol. 1.



FELIX DE AZARA, 1781-1801.

(From Voyages dans l'Amérique Méridionale, Paris, 1809.)

mountains. On the top of Descabezado, a very lofty mountain in the midst of the principal chain of the Andes, whose height appears to me not inferior to that of the celebrated Chimborazo of Quito, various shells, evidently the production of the sea—oysters, conchs, periwinkles, etc.—are found in a calcined or petrified state, that were doubtless deposited there by the waters of the Deluge. The summit of this mountain, whose form appears to be owing to some volcanic eruption, is flat, and exhibits a plain of more than six miles square; in the middle is a very deep lake, which from every appearance was formerly the crater of a volcano. *The principal chain of the Andes is situated between two of less height that are parallel to it.* These lateral chains are about twenty-five or thirty miles distant from the principal, but are connected with it by transverse ramifications, apparently of the same age and organisation, although their bases are more extensive and varied. From the lateral ridges many other branches extend outwardly, composed of small mountains, occasionally running in different directions."

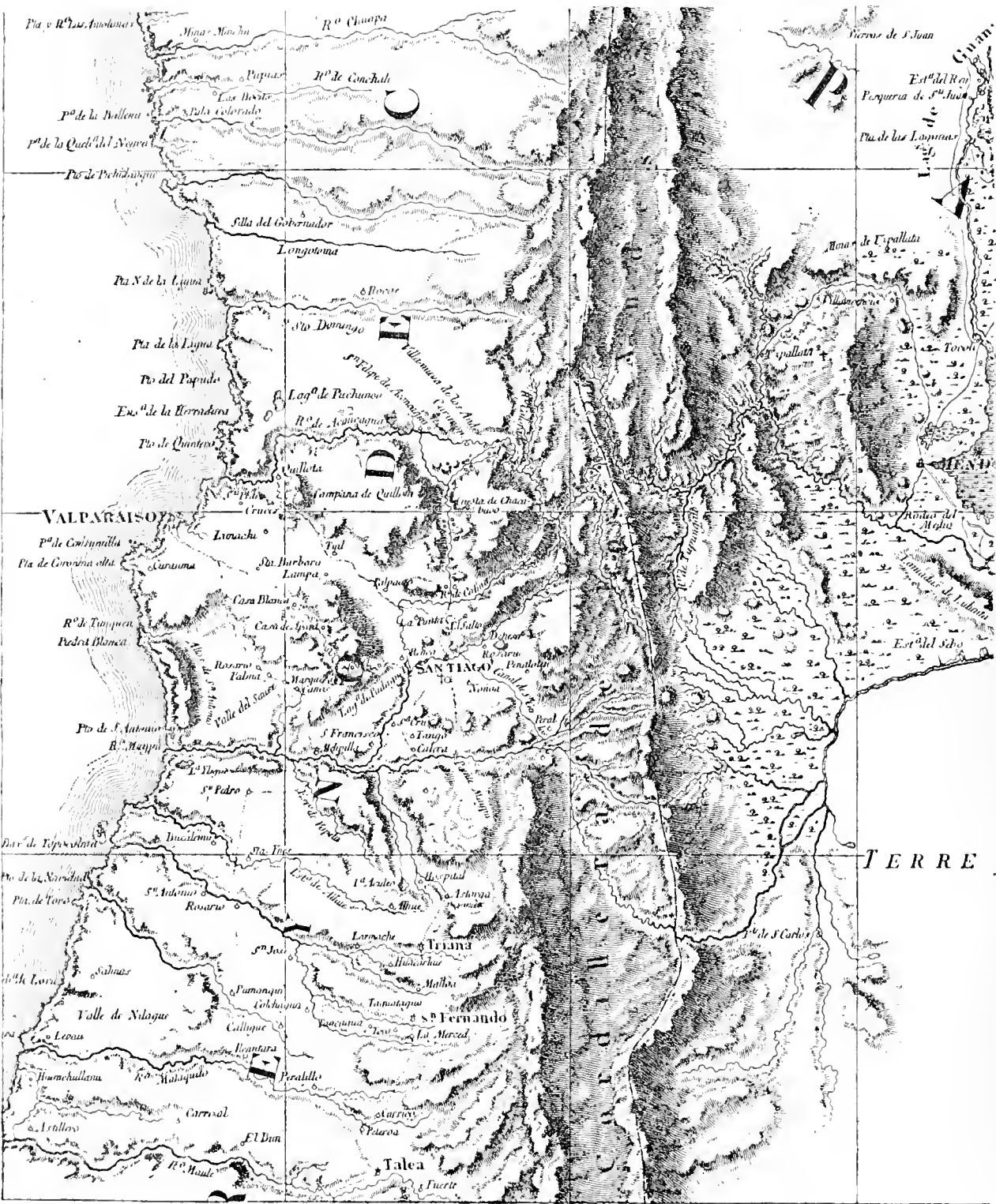
3. RESULTS DERIVED FROM THE DOCUMENTS QUOTED.

The foregoing is some of the historical evidence of the Colonial epoch. The authorities quoted suffice to prove that the crest of "the Cordillera" was the boundary between the two jurisdictions at the time of the Spanish domination; that the jurisdiction of Chile extended over the western slope, while, in the words of the learned Don Felix de Azara, "the famous Cordilleras of the Andes and its eastern slopes are the western boundary of the Rio de la Plata." *

The Colonial era terminates in the year 1810, and this is the date of the Carta Esférica de la parte interior de la América Meridional para manifestar el camino que conduce desde Valparaiso á Buenos Aires, construida por las observaciones astronómicas que hicieron en esos parajes en 1794 Don José de Espinosa y Don Felipe Bauzá, oficiales de la Real Armada, and Plano del Paso de los Andes, contained in the same sheet, published by the "Dirección Hydrográfica" of Madrid (1810). This "Carta" and "Plano" reproduced here in part, are therefore Spanish official documents anterior to the South American War of Independence, and besides being the best geographical documents of that part of South America published up to that time, they have a real importance in the present case.

In the "Carta" appears the Cordillera de los Andes divided into two chains,

* The facsimile given of the map that accompanies the French edition of Azara's work (anterior to the Spanish edition), entitled *Voyages dans l'Amérique Méridionale*, par Don Felix de Azara, Paris, 1809, shows the Cordillera cut by a river (the river Aisen?), and this fact is of value in view of the scrupulousness of this traveller, who doubtless derived this information from a trustworthy source.



JOSE DE ESPINOSA Y FELIPE BAUZÁ, 1794.

(Part from the Carta Esférica de la parte interior de la América Meridional para manifestar el camino que conduce desde Valparaiso á Buenos Aires, Madrid, 1810.)

the western, opens opposite Santiago, giving passage to the river Maipu, which has been drawn as rising to the east of the eastern chain, whilst the—"Rio de Tunuyan" rises in the depression between the two chains, cutting the eastern. The river Mendoza, in that "Carta," has its source in the western chain. Taking into account these openings, and the access to the higher mountains, the authors drew the boundary between the "*Viceroyalty of Buenos Aires and the Kingdom of Chile*," along the line of the highest summits; abreast of the river Mendoza for the western chain, and then towards the south for the eastern, passing by the summit of the Tupungato, and cutting the source of the river Maipu and the principal branch of the river Tunuyan. In the "Plano" the name "Cordillera de los Andes" is only given to the loftiest part of the mountainous mass, i.e. to the summit of the latter. Both facts synthetise the idea of what Spain understood by Cordillera de los Andes, and by the boundary within it of her two jurisdictions in the southern extremity of America; an idea which is the same that was held by the two peoples before Independence, and since then, as will be seen in the following chapters.

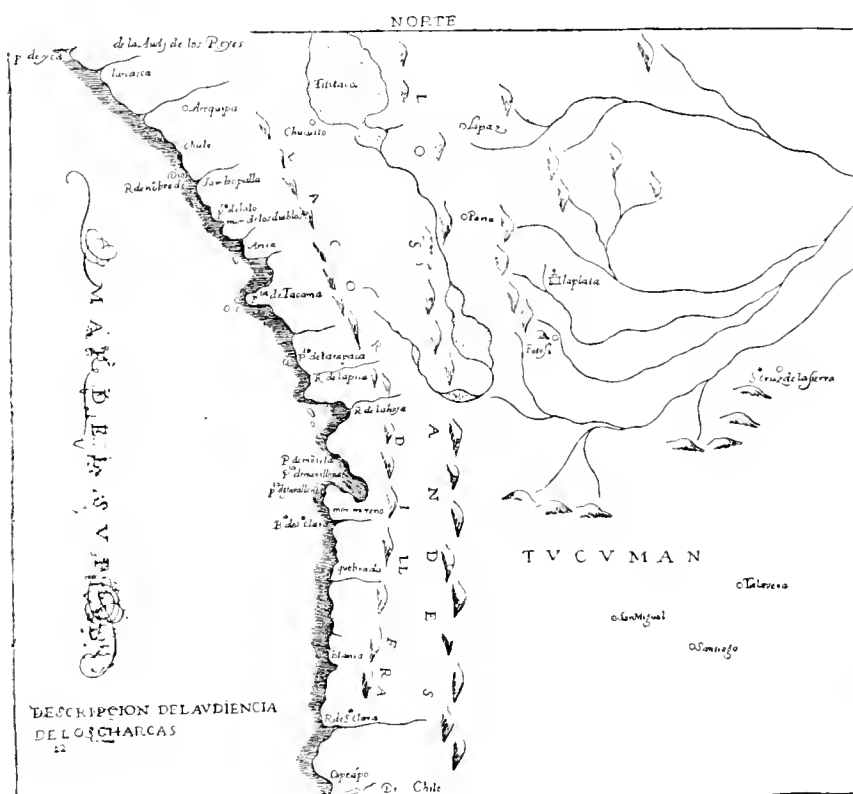
The authorities quoted suffice, also, to prove that the Cordillera de los Andes is the name given to the high crest of the principal chain of the Andes, as it is said, among others, by the highest Chilean authorities of the colonial times—Rosales, Ovalle and Molina—and consequently what is understood by "Cordillera" is only the principal chain, known traditionally as "the Cordillera de los Andes."

It would be absurd to say that the name of *Cordillera*, which was applied in the Colonial times, and since, to the highest crest of the main range of the Andes, was also applied to the mountain lying to the east and west of it. These mountains received different names from different people; those of the east were called "the Andes," or the "Cordillera Real," in Perú and in the country now called Bolivia; in the territory now belonging to the Argentine Republic they had local names, as, "Mountains of Tucuman," "Famatina," "Uspallata," etc.; while those in the central and western part of Chile were called "Mountains of the Coast," "Cordillera de la Costa," or by local names. Not once, either in the histories or in the maps, is the name of "Cordillera de los Andes" given to the lateral mountains referred to. Hundreds of maps have been re-examined, and in not one of them has any such thing been found.

Sometimes the name of "Andes" is given to the "*Cordillera Real de*

Bolivia,” and the name of “Cordillera” to the real Cordillera de los Andes, which takes the name of Andes to the south of parallel 27°, at which point began the colonial “Chile.”

In the first Spanish edition of the *Describeion de las Indias Occidentales*, by Antonio de Herrera, published at Madrid, 1601, there are two maps, reproduced here in facsimile. Probably these are the first maps in which the name Andes is applied to the eastern range, and the name Cordillera to



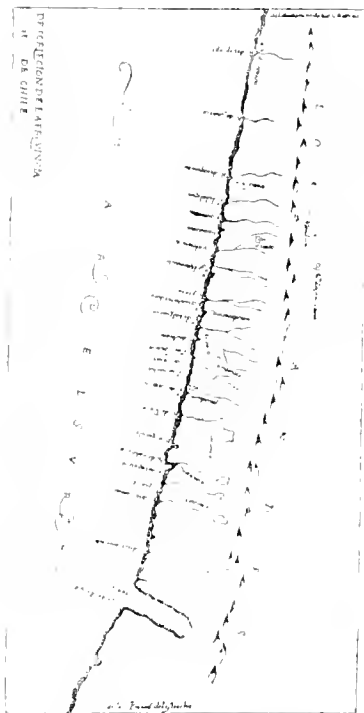
ANTONIO DE HERRERA, 1601.

(From *Descripcion de las Indias Occidentales*, Madrid, 1601.)

the western, north of 27° , and Los Andes to the true Cordillera south of that parallel. This clear distinction has been recognised by all geographers and historians, and will remain, notwithstanding the efforts of the Chilian Expert, Señor Barros Arana, to change what tradition, confirmed by science, has established.

The Cordillera is generally drawn in maps without any break of continuity in the north, while in the region of the south it appears at times cut by rivers,

which have their sources in lands situated to the east of it, or to the east of the graphic representation of the crest that bears the name of "Sierra Nevada of



ANTONIO DE HERRERA,
1601.

(From *Descripción de las Indias Occidentales*, Madrid, 1601.)

§§ Mapa Geográfico de América Meridional dispuesto y gravado por Juan de la Cruz Cano y Olmedilla, Madrid, 1775.

|| South America, S. F. Arrowsmith, London, 1811.

¶¶ Carte Enceyprotype de l'Amérique Méridionale, par H. Brué, Paris, 1816.

the Andes," * "Cordillera or Sierra Nevada de los Andes," † "Andes Mountains," ‡ "The Cordillera or la Montagne des Andes," § "Andes M. or Cordillera Nevada," || "La Cordillera," ¶ "Cordillera Mountains," ** "Cordillera Mounts de los Andes," †† "Cordillera de los Andes," ‡‡ "Cordillera Nevada de los Andes," §§ "Sierra Nevada," "Cordillera Nevada de los Andes," ||| and "Grande Chaîne des Andes convertée de neige perpétuelle." ¶¶

* *America Pars Meridionalis*, Amsterdam, 1650.

† (a) *America Meridionalis*, par Sanson, Paris, 1660. (b) Map of Chile, by Sanson, 1667. (c) *America Meridionalis*, Paris, 1691. (d) *Columbia or South America*, by L. S. D'Arcy de la Rochette, London, 1818.

‡ (a) *America Meridionalis*, corrected by W. Berry, London, 1680. (b) *South America*, by J. Gibson, London, 1770.

§ *America Meridionalis*, Amsterdam, 1695.

|| *L'Amérique Méridionale*, Paris, 1704.

¶ *Carte de l'Amérique Méridionale*, dressée par A. P. L. Feuillée, Paris, 1714.

** *South America*, by D'Auville Bolton, 1775.

†† *New Map of South America*, London, 1760.

‡‡ *South America*, London, 1780

CHAPTER III.

- Summary*—1. THE CORDILLERA DE LOS ANDES ACCORDING TO THE OPINIONS MAINTAINED AT THE TIME OF EMANCIPATION.
2. OPINION OF FOREIGN TRAVELLERS AND GEOGRAPHERS WHO HAVE VISITED CHILE.
 3. OPINION OF SEVERAL AUTHORS OF POPULAR WORKS.
 4. OPINION OF SCIENTIFIC MEN IN THE SERVICE OF CHILE: GAY, PISSIS, DOMEYKO AND ASTA-BURUAGA.
 5. OPINION OF OTHER WRITERS.

1. THE CORDILLERA DE LOS ANDES ACCORDING TO THE OPINIONS MAINTAINED AT THE TIME OF EMANCIPATION.

THE Cordillera de los Andes, the crests of which constituted the boundary of the provinces subject to the crown of Spain during the colonial period of South American history, has also been considered by Chilean statesmen as the international boundary since the revolution which led to independence, and they have understood by “Cordillera de los Andes” the formidable main chain described by Spanish writers.

The highest crest of the principal chain of the Andes presented natural features fitting it to serve as a secure frontier. It was an effectual defence for each of the countries which it separated, and a wall which would restrain any attempt at territorial expansion from either side.

The public men of Chile thus marked it from the very first moments of autonomous life, and in books and proclamations, in laws and treaties, in messages and in despatches, in political constitutions, and even in the national Hymn, the Cordillera is referred to as the boundary, and often its peculiar suitability as such is spoken of.

That boundary had something which the distinguished Chilean statesman, Camilo Henríquez, described as “a geographical truth presenting itself to the eye,” Chile being, he added, “shut in, as within a wall, and separated from other peoples by a chain of very lofty mountains, covered with eternal snow.”

And that "geographical truth" was impressed on the authors of the "Plan of Defence" against Spain, drawn up by the statesmen of Chile, Egaña, Mackenna and Samaniego, on December 27, 1810. They wrote:—

"The indifferent will say that Chile, owing to its geographical situation in a remote corner of the globe, and owing to the *local features which it presents*, will be the last country of America which the enemy will invade. It is some consolation for the cold egoist, to be the last to be devoured, but though it must be acknowledged that the distance from Europe to Chile is immense, and that *the Andes on the east*, the Desert of Atacama on the north, and Cape Horn on the south *are formidable barriers*, this kingdom is not so invulnerable as may be supposed." *

The founders of the Chilian nationality have considered the formidable barrier of the Andes to be a part of their national defence and natural frontier from the beginning, as have also the Argentine people. Another distinguished statesman of Chile, Don Manuel Renjifo, referred to these natural features of the frontier in the following words:—

"The territory of the Republic being circumscribed by eternal boundaries which separate it from the rest of the continent, *we do not run the risk of seeing ourselves engaged in boundary wars*, nor, in our political plans, can any ambitious expectation find favour such as would alarm adjoining provinces." †

According to Señor Frias, the Argentine Minister to Chile who had studied the boundary question:—

"A month had not yet elapsed after the breaking out of the revolution of May 25, 1810, when the Government of Buenos Aires instructed Colonel Don Pedro Andrés García to inspect the frontiers, and to suggest means for their defence. The following year, the said officer reported on the result of his labours, recommending that they should be extended as far as the skirts of the *famous Cordillera of Chile*,' and he added, '*nature affords* us in the Andes an indisputable boundary.' In the same year Don Juan Egaña (Chilian statesman) said, 'We are defended against our neighbours by the *Cordillera*,' and Doctor Rojas said, 'On the east, the snow-capped Andes serve us as a barrier.' In 1818, the Government of the United States sent some delegates to Buenos Aires in order to obtain information with regard to the state of the country. Mr. Rodney, one of the delegates, said in his report, 'In 1778, the new Viceroyalty of Buenos Aires was established, consisting of all the territory to the east of the Cordilleras. . . . Eight years later, Mr. Samuel Larmed, the Envoy of the United States in Chile, advising the adoption of the federal system as the most advantageous for the new Republic, found an argument, in support of his views, in her geographical position, which separated her, '*by the immense and*

* Memoria de R.E. de la R.A., 1873, Apendice, p. 62; Quesada, p. 692.

† Memoria de R.E. de la R.A., 1873, Apendice, p. 62.

almost inaccessible Cordillera from the remainder of the continent. So that *the natives of both countries as well as foreigners*, seem in accordance, to give the truth to the evidence which has been collected by history." *

In 1815, the independence of Chile was in danger. The arms of the Spaniards had overcome the revolution, but the Chilians were not disheartened. Don Bernardo O'Higgins, whose name the Chilians affectionately cherish, drew up a "Plan to attack and exterminate the tyrannical usurpers of Chile." In that Plan referring to the country, with regard to its configuration, he says :—

"It has the appearance of a large oblong fortress, of which the citadel is Santiago de Chile; the distant provinces of Perú form her boundary to the north; the Pacific Ocean forms the western limit; the Magellan Straits the southern extremity; and *the great wall of the Cordillera de los Andes* that to the east." †

Two Chilian generals, Mackenna and Aldunate, repeated this opinion later on: "Nature has given to Chile" are the words of one of them, "in the majestic range of the Andes a natural fortification which, from its great extent, is unique in the world." "This country," says the other, "is enclosed on all sides by impregnable barriers." ‡

2. OPINION OF FOREIGN TRAVELLERS AND GEOGRAPHERS WHO HAVE VISITED CHILE.

From the days of the Independence up to 1881, Chile was visited by men of science, of whom some were travellers passing through the country, while others devoted many years to the study of its soil, or made the country their permanent home. To them we owe data of value which confirm the successive judgment of the statesmen of that country, who proposed and accepted as the international boundary on the east, the lofty crest of the Cordillera de los Andes, inserting it without any discussion in the Treaty of 1881, as an unalterable boundary between the two neighbouring nations.

In 1820 and 1821, Peter Schmidtmeier § travelled from the Atlantic to

* Memoria de R.E. de la R.A., 1873, Apendice, p. 50. † V. G. Quesada, Patagonia, etc., p. 640.

‡ Memoria del Ministerio de Relaciones Exteriores de la República Argentina, 1873, Appendix, p. 63.

§ Travels into Chile, over the Andes, in the years 1820 and 1821, by Peter Schmidtmeier, London, 1824. Chap. ii. p. 20.—"South America, in its geography, geognosy and meteorology, offers some very striking features. The long chain of mountains called Andes, of considerable breadth and enormous height, begins

the Pacific, crossing the famous Cordillera, and it is well to quote his remarks as they are much to the purpose. He stated "that the central chain is always the highest, and is flanked by two other parallel chains"; that—

"In the middle of this immense chain, or nearly so, rise considerably higher than their mountainous and chiefly parallel flanks, one or more longitudinal ridges, *and these*

with the land, at the Straits of Magellan; extends along the western coast of the Pacific Ocean, within a mean distance of about ninety miles from its shores, until, in the province of Popayan near the equator, and between the second and fifth degrees of north latitude, it divides into three branches, having run the distance of 3800 miles: and then, like a river dividing its body of water into three streams, they lose much of their bulk and elevation, or, as it were, only divide them; but, yet unwilling to abandon their course and characteristic feature, the central chain, continuing nearly north, remains the highest, until it sinks in the Charibbean Sea, and the other two still appear as its parallel flanks, gradually thrown off; the one to the north-east, also losing itself in the same sea; the other to the north-west, and along the Isthmus of Darien, where it is stated to be only 1200 feet high. It soon however rises again; and, in Mexico, the Andes resume very majestic forms, pursuing their course to the northward; but how far, does not appear to have been yet ascertained.

"In the middle of this immense chain or nearly so, rise, considerably higher than their mountainous and chiefly parallel flanks, one or more longitudinal ridges; and these alone, in Chile, are called *cordillera* or *coralleras*. This distinction is perhaps only popular and not scientific, but it is nevertheless very characteristic: it applies to a peculiar part and feature of the chain which, by its superior elevation, its aspect, and a formation, if not really at least apparently, different from the principal structure of the lower Andes, establishes itself very strongly in the mind. Therefore, after having travelled in the mountains of that country, with the impression of the distinction made by the name of *cordilleras* of higher central ridges, having the appearance of sharp, indented or knotty lines, and when reading this appellation applied to chains of mountains generally, in descriptions of America, it requires an effort of some continuance, to bring down their heights to any standard, and their ridges to a common structure, by which the impression received in Chile becomes gradually more faint and confused.

"On this higher central chain and at intervals, the lines of ridges or *cordilleras* are intersected by summits again rising above them, in pyramidal and other forms, many of which are more or less covered with perpetual snow, and are of so great an elevation, that they may rather be described as other high mountains, seated on and along the whole chain, at a smaller or greater distance from each other; although, when viewed from its ridge, they only appear like hills. The greater number of these highest mountains or summits are, in semblance, as so many furnaces, and in reality, the funnels of volcanoes, some still burning, others extinct. A few do not exhibit the appearance of a crater at their top; but it may be supposed, either that it cannot be seen, or that the falling in of the sides has been sufficiently considerable, with the snow lying on their surface, to occasion the rounded and full forms which they show; unless it be conjectured, on the other hand, that the fermentation of substances chiefly composing the higher chain, or deeper subterraneous fires, sufficient to raise these higher masses, were not always sudden and powerful enough for opening in all a wide passage and the crater of a volcano. Between these lofty summits are also vestiges of great shocks; and by their sides, on the lower mountains, may likewise be seen the remains of smaller volcanoes and of sudden combustions. Thus runs this characteristic and magnificent chain of the Andes, with little interruption, the space of near 7000 miles, or indeed much farther, if the long range of mountains, now described by the name of Stony or Rocky, should hereafter be found a continuation of the same kind and character. The mean elevation of this western wall is stated by Mr. de Humboldt to be, in South America, 1850 toises, or 11,830 feet; but the statement, according to the note by which it is accompanied, extends only to the Andes of New Grenada, Quito, and Perú; nearly half the chain appears, therefore, still excluded from the estimate; and those of Chile, Arauco and Magellan may tend to raise, rather than lower, the mean altitude of the Cordillera of South America."

Chap. ii. continued, p. 25.—"The countries on both sides the Andes, from the Straits of Magellan to the

alone in Chile are called *Cordillera* or *Cordilleras*," and he adds: "This distinction is perhaps only popular and not scientific, but it is nevertheless very characteristic; it applies to a peculiar part and feature of the chain, which by its superior elevation, its aspect, and a formation, if not really, at least apparently, different from the principal structure of the

latitude of the river Biobio, in 37° S., are described as being moistened by abundant rains, particularly the tract to the south of the Araucanos. The lands of the latter are represented as enjoying a fine climate, a very fertile soil, and as sufficiently watered for good pasture, and for agriculture without irrigation: but, from that river, the climate begins to undergo some change, and irrigation often becomes necessary. As we advance northward and nearer to Santiago de Chile, the alteration becomes more striking, although the geographical distance be small; pasture is scanty, owing to the want of moisture, and from about Talca to Atacama, which forms nearly the whole of Chile below the Andes, the lands cannot be described as pasturages, nor vegetation as strong. Yet the soil is everywhere uncommonly good; it throws up a little grass after the winter's rains, which are of very short duration: as we proceed to the north of Santiago, they decrease into a few showers, and at last, along the desert of Atacama and lower Perú, they entirely cease. But the spots of land which are cultivated, or laid down and irrigated, produce very abundantly without manure. The thin grass, of natural growth in the spring, lasts a few weeks, is very good for cattle of all descriptions, and a small saving against the calls on agriculture, so that the herds must be sent as early as possible to the Andes."

P. 26.—"On the eastern side of the Andes, the climate offers the same phenomenon, and I have no doubt, as far to the northward as on the western; although there are in both some few small spots, which, owing to their peculiar forms and situations, and to the supplies of some scanty streams from the mountains losing themselves over their surface, are naturally fit for pasture the whole year; and these are very valuable to the owners of the estates in which they happen to be situated. To the eastward, there being more scope than in Chile, the effect of this peculiarity of climate is felt at a distance of nearly 500 geographical miles from the Andes, where the heavy and frequent rains which fall at Buenos Aires, begin sensibly to decrease, and soon afterwards to make way for almost uninterrupted sunshine; and although light showers will sometimes extend beyond their usual limits, or some remarkable winter may cause a little more rain to fall than usual, yet such is the principal feature of the climate on both sides that chain; as far as the 60th degree of longitude to the east; probably far at sea to the west; and to Quite northward. In Chile and in the opposite eastern country, the sun shines nearly the whole year, with great brightness and power, being only now and then interrupted by the short rains and cloudy days of winter with the north-west wind, and by some few passing clouds in the other seasons; but in lower Perú, the sky is much more clouded, although rain do not fall. If we now advance on the chain itself of the Andes, we shall find that from the same latitude where the climate becomes drier, and of Concepcion, or perhaps far more to the southward, the clouds hang thick, almost daily, on some parts of the higher ridges, or to speak the language of Chile, *of the Cordillera*, and that they are not often seen on the top of the lower chain, except in winter. Storms about those ridges are very frequent during the whole year; and in summer, the lightning may be seen there from Santiago, two or three times a week in the evening or at night; but thunder is very seldom heard. The clouds do not discharge their contents in rain, but in snow. Guides in Chile, the herdsmen who lead the cattle to the mountains below the higher Cordillera in summer and who tend on them, or, in short, any one that I heard, will not say, it rains on the mountains, but, it snows; although the storm may extend very far below the line of perpetual snow."

Chap. xi. p. 223.—"A torrent called Oreone comes out of the central ridge near this spot and joins the Cueva, with a good effect when the snow does not interrupt the sight of it. We soon began to ascend that part of the Cordillera called the *cumbre*, or the summit of the ridge; and shortly the ground became so steep, and, owing to a crust of frozen snow, so slippery, that our surprise was great, when we saw that our mules could carry us and our heavy loads along it: a brow, where had we attempted not only to walk, but even to stand on our feet, we must have instantly slipped and rolled down like snowballs, the distance of about a mile. Our Peruvian fellow traveller, who rode immediately behind me, was from time to time exclaiming 'Ave Maria, qual camino!' and I, fearing lest his ejaculations should vibrate the atmosphere too much, and my mule out of its balance, was holding on it, as if an ounce more only, thrown over the right or left side,

lower Andes, establishes itself very strongly in the mind. Therefore, after having travelled in the mountains of that country, with the impression of the distinction made by the name of Cordilleras, of higher central ridges, having the appearance of sharp indented or knotty lines, and when reading this appellation applied to chains of mountains generally, in descriptions of America, it requires an effort of some continuance, to bring down their heights to any standard, and their ridges to a common structure, by which the impression received in Chile becomes gradually more faint and confused."

These observations are perfectly correct. "*Cordillera*," with no addition, means, *in Chile and in the Argentine Republic, the lofty Andine chain*, and it is vain to attempt to set aside this meaning for the purpose of strengthening inconsistent arguments which only introduce confusion respecting points which are clear in the Treaty of 1881. In this lofty chain, and in no other, is the "*Cordillera de los Andes*" of that Treaty.

The loftiest ridge of the chain is called the "*Cumbre*" and the "*Cordillera*," as former travellers have noted, and as all remark who have crossed the Cordillera from the time of the conquest to the date of the Treaty. Each lofty pass (*portezuelo*) of the loftiest ridge of the chain is called *a pass of the "Cumbre of the Cordillera,"* and a succession of points form *the loftiest "cumbres" of the Cordillera* to which the Treaty of 1881 refers.

The Argentine Government maintain the same views, and it is, therefore,

should make us both roll down to a death, which we are apt to contemplate differently, or to talk more freely of, when our passions are stirring within and warming us, than when they and our body become chilled by an icy wind and scenery. But this dangerous road, which without snow is very easy, did not continue more than half a mile, and afterwards the ascent, although steeper still, yet being more exposed to the sun, was nearly free from it, as during the last fine days much of it had melted down. The ground was very soft, consisting of broken or pulverised fragments of rocks, and we climbed up it, a few steps at a time, in order that our mules might breathe more freely. Two hours after the beginning of our ascent we reached the top of the Cordillera, and found it here reduced by convulsions and disruptions to a back only 200 or 300 feet wide. The ridge on each side of us rose several hundred, and further on, some summits perhaps 2000 feet above the spot where we stood: but we had no view of Tupungato nor of any of the highest mountains, and our prospect was in every direction contracted within narrow limits; on the eastern side we could only see part of the valley which we had just left, with the volcano opposite to, and rising above us; and on the western, the first step of the descent into Chile, which was particularly striking; a very low pit, which, partly owing to its form, and partly to the effect of the deep snow in it, appeared as if we were going to be hurled rather than carried down into it; a narrow opening into another and lower; the lofty brink of the first, considerably higher than our own *cumbre*, forming part of a circle around us, and shutting out any farther view than the entrance, or rather the apparent fall into the next pit; the whole nearly all covered with a very considerable quantity of snow which usually comes with a north-west wind, and is arrested and accumulated here by the higher ridge of the Andes. This view reminded me, in a far more extensive degree, of the pass of the Saint Gothard, which I had crossed whilst some snow was still lying over it; but the great size and depth of the well before us, and the scale of the prospect, although comparatively contracted, rendered it much more remarkable."

an error to affirm that they understand that the boundary line runs over the loftiest peaks of the chain, and not in its general dominating crest or summit.

The traveller Miers,* who visited the same places as Schmidtmeier, thinks that the ridge of the Paramillo of Uspallata does not belong to the

* John Miers, Travels in Chile and La Plata, 2 vols., London, 1826.

Vol. 1, p. 273.—“From this place we begin to ascend the Paramillo, which is the name given to a very long and narrow mountainous ridge, lying between the Plain of Uspallata and Mendoza: it is evidently of very different formation from the more western, or *main Cordillera*, and is said to run independently of it.”

Pp. 278-9.—“It seems, as I have before stated, that the chain of the Paramillo is nowhere connected in these latitudes with the *main Cordillera*. It proceeds from the grand branching chain which extends into the Brazilian territory, and separates Upper Perú from the unexplored country, in which are several of the sources of the river Amazon. In how many places this chain has been cut through by the water flowing from the Cordillera, we are as yet uninformed, but we are certain that it is so intersected in two places by very narrow and almost perpendicular fissures, through one of which passes the river San Juan, and through the other that of Mendoza. These channels in some places are so very confined, rocky, and precipitous, that they are impassable by man or beast.”

Pp. 281-2.—“This river derives its sources from the *central ridges of the Cordillera*, to the northward of the Volcan de Aconcagua, and as before described, empties itself into the lakes of Guanacache.”

Pp. 291-2.—Passing by the point of the mountain range called Cerro Blanco, we enter a valley bounded on each side by lofty chains of hills. The first two leagues we pass alternately on the river bed and on the elevated table height before alluded to, until we reach the Ladera de las Cantaderas, the first of those dangerous passes which by all travellers and historians have been described as productive of dreadful terror and of imminent danger. I have before mentioned that an elevated table height extends along the whole course of the valley, up to the very foot of the great range of the Cordillera, the height being about 200 feet above the stream; the width of the valley is about a quarter of a mile; the river has worked its present course through this vast deposition in a serpentine direction. In some places it has bounded from one side of the mountain barrier to the other, undermining and carrying away such parts of the ancient alluvial deposits as impeded its progress; at these angles, therefore, the road along the table level is interrupted, and paths have been cut in the steep perpendicular sides of the original boundary of the valley, or in the narrow remains of the old alluvium: wherever the original rock presents itself we find it half disintegrated, and in a state of decomposition. The first of these interruptions of the table height constitutes one of the most dreadful of the Passos de Piligro: the pass of the Cortaderas has been wrought along the tortuous mountain sides for about two miles, sometimes ascending, sometimes descending: sometimes the path is pretty broad, sometimes narrow.”

P. 301.—“We shortly arrive opposite the valley of Tupungato, which affords almost the only striking view on the eastern side of this part of the Cordillera: this valley opens from the opposite side of the river; it is much broader than that we have passed through, and much longer, its termination being closed by the celebrated peak of Tupungato, said to be the highest point of the Chileno Andes. From this place Tupungato appears as a lofty peak, rising in a conical form above the receding points, *which branch from the main chain, and though situated in the central ridge, seems as if it were an insulated mountain.*”

P. 318.—“At this place is the fourth casaca of Las Cuevas, distant from that of the Paramillo four miles. The height of the Cuevas is 19,044 feet above the level of the sea. We can now easily distinguish the winding ascent up the face of the *Cumbre*, upon the southernmost line of hills that hem in the valley, which here becomes much narrower; the foot of the ascent is a mile in advance to the westward. Beyond this the upper part of the valley turns to the north-west, and at no very great distance disappears among the numerous small ravines or undulating ramifications running from the loftier parts of the chain lying to the southward of the Volcan de Aconcagua. The ascent of the *Cumbre* is gradual, but long and tedious: this mountain is covered with loose reddish earth, mixed with angular fragments of stone to its very summit.”

At foot of p. 318-19.—“After exerting a due share of patience the traveller finds himself at length on the summit of the *Cumbre*, a part of the high main central ridge of the Cordillera, and the loftiest point of

"main Cordillera" and that it runs independently of it—an observation confirmed by later observers up to our time. He notes that the rivers which descend to the east have their sources in the central ridges of the Cordillera, and considers the "Cumbre" as part of the principal lofty ridge of the Cordillera, ascribing various passes which he defines as situated in the principal ridge, or in the principal central chain of the Cordillera, as that of Piuquenes

the road between Chile and Mendoza, which here attains an elevation of 1876 feet above the Cuevas, or 11,920 feet above the level of the sea."

Pp. 352-3.—1. "The pass of La Dehesa. This is on the high road from Mendoza as far as the Punta de las Vacas, and hence up the valley of Tupungato, and the auxiliary branch of the Rio de los Penitentes, it crosses the *main ridge of the Cordillera*, near the source of the river which lies to the northward of Tupungato Peak; thence descending into the valley of the Dehesa, the source of one of the auxiliary branches of the Rio Mapocho, which flows immediately through the city of Santiago.

2. "The pass of Los Patos. This leads from the city of San Juan up the ravines leading to the sources of the river, crosses the *main ridge* to the northward of the Volcan de Aconcagua, whence it descends, through a series of ravines, into the valley of Putaendo, which is a more northern extension of the valley of Aconcagua. The river Putaendo mingles with the river of Aconcagua a short distance from the town of San Felipe. On this road there is abundance of pasture and water, but it has the disadvantage of crossing five different lofty ridges, and the still greater one of a much longer route: it is only followed by the muleteers who traffic between Aconcagua and San Juan.

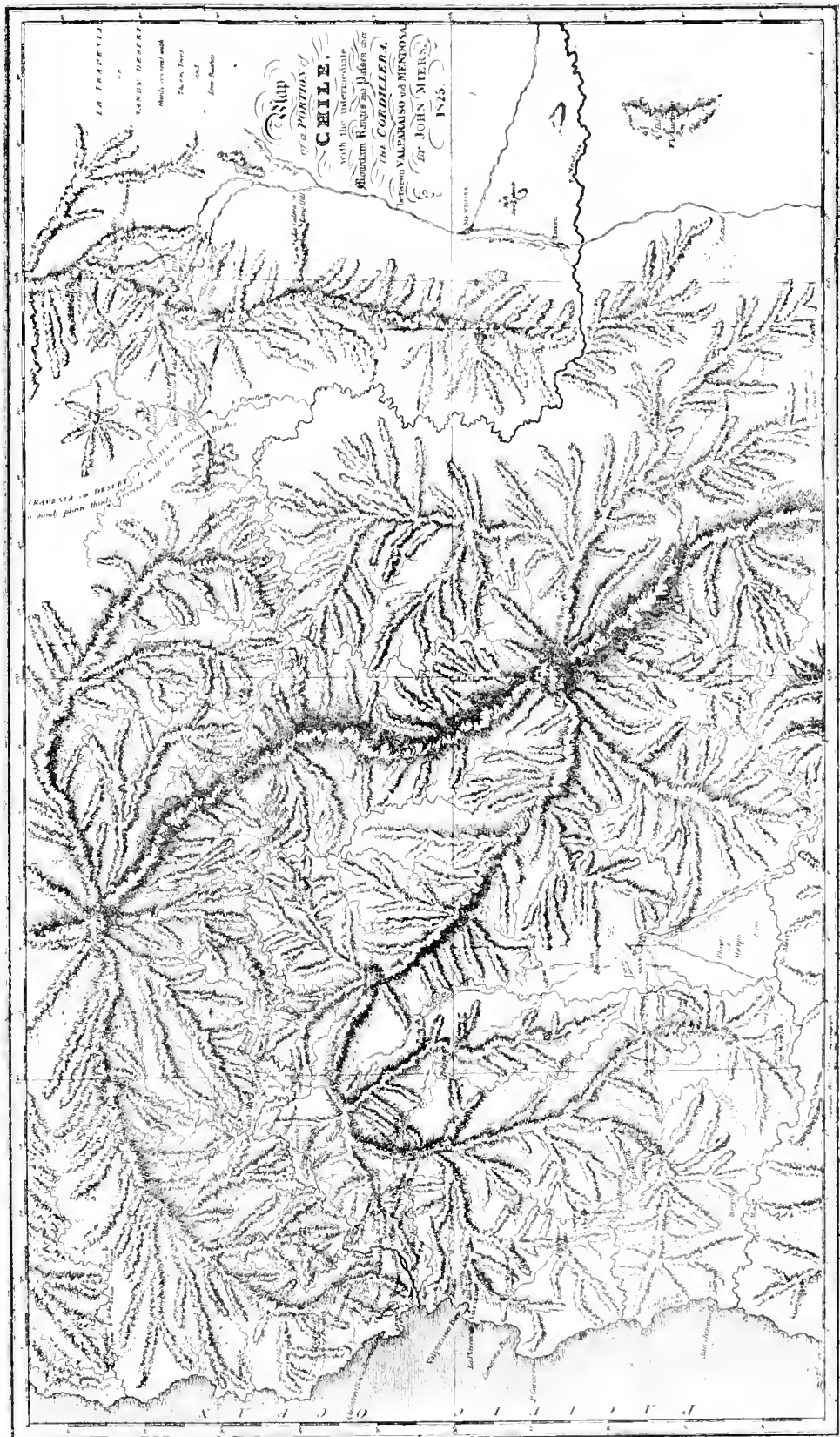
3. "The pass of the Portillo. This is said to be the shortest and the best: it proceeds through Luxan, a village five leagues to the southward of Mendoza, crosses that river, and passes through the beautiful estate of the Tortoral, ascends the Cordillera, and finally leads to a high main ridge, branching from Tupungato towards the south-east: the passage over this ridge is that of the Portillo: it is so called from the road being at one place so narrow as to allow only a loaded mule to pass; thence it descends to the bed of the river Tunuyan, not many leagues from its source, to the southward of Tupungato Peak; thence it ascends another lofty ridge, *which is the main central chain of the Cordillera*, here called La Cuesta de los Piuquenes, whence it descends the ravine of the Rio del Yeso, a branch of the river Maypo, into which it falls, and along the banks of whose stream the road tends, crossing subsequently the Rio Colorado, another auxiliary branch of the Maypo; thence it passes the Guardia, at the distance of four leagues from which the road leads into the extensive plains of Maypo; here it leaves the river, and runs eight leagues to the northward, until it reaches the city of Santiago: the distance from Mendoza to Santiago by this route is said not to exceed eighty leagues, and is easily performed in three days, whereas that by the way of the Cuevas takes ordinarily eight days."

Pp. 354-5.—4. "The pass of the Planchon is next in repute; it is, however, seldom travelled, and only by those who trade with the Indians of the Pampas. It commences at the town of Curico, in lat. 34-50, passes up the river of that name, crosses two ridges of the Cordillera, in the course of which are seen both the peaks of the Descabezado and the volcano of Peterva, which is said to be always smoking. After passing the second ridge, the road leads to the valley De los Ciegos, in the Pehuénches territory, and thence by the fort of San Carlos to Mendoza. The Cordillera, by the pass of the Planchon, is described as being much lower than that about the Cumbre of Las Cuevas, and is said to be more gentle in its ascents and descents.

5. "The pass of Antuco affords yet more facilities for commercial intercourse than any of the before-mentioned passes. Many Chilenos have attempted to persuade me that the Cordillera, in the latitude of Concepcion, is almost lost in low hilly undulations; so much so, that the river Biobio rises on the eastern side of the Cordillera, flows some distance towards the Atlantic, then turns towards the west, and passes through the mountains of the Andes."

P. 356.—"The Antuco road commences at the junction of the La Laja with the Biobio river, pursues the summit of a cordon, crosses the *main chain* without meeting with steep declivities, and descends the opposite side by the same kind of ridge."

P. 357.—"I have hitherto spoken only of the passage over the Cordillera during the periods when the



JOHN MEERS, 1826,
(From Travels in Chile and La Plata.)

—and he traces the eastern boundaries of the provinces of Aconcagua, Santiago and Rancagua in the “*central ridge of the Cordillera de los Andes.*” He does not consider the mountains on the east of the central valley as parts of the Cordillera. The interesting map which accompanies his observations shows clearly what Miers understood by “Cordillera” and by its central ridge.

A. Caldelegueh * says:—

“In describing modern Chile, it must be understood to comprise that portion of country on the *west of the Andes*, which, bounded on the north by the desert of Atacama, extends to the banks of the river Biobio on the south. It lies, therefore, between lat. 26° and 37° S. Its breadth, from the great Cordillera to the Pacific Ocean, varies considerably; but its average may be considered about two degrees, lying between long. 69° and $71\frac{1}{2}^{\circ}$ W.

roads are clear of snow: in the months from June to September, the passage cannot be effected without considerable personal exertion, much delay, and at a far greater expense: at these times the valleys on both sides of the Cordillera as well as the Cumbre itself are deeply covered with snow, so as to be impassable by mules.”

P. 418.—“Aconcagua. This province extends from the *central ridge of the Cordillera* on the east to the province of Quillota on the west, from the province of Coquimbo on the north to the province of Santiago on the south, being a distance from east to west of about forty miles, and from north to south of about 110 miles. It possesses a considerable portion of cultivated ground. It is watered by two main branches proceeding from the Cordillera, that of Putaendo proceeding from the north-east, that of Aconcagua proceeding from the south-east; their junction is effected near the town of San Felipe, opposite to the opening of the valley leading to Quillota.”

P. 421.—“The village of Putaendo is somewhat similar to that of Curimon; its situation has already been mentioned. That part of the province lying between the valley and the *central ridge of the Cordillera* contains a considerable extent of ground, used for breeding and rearing cattle.”

P. 424.—“Santiago. This province extends from the *central ridge of the Cordillera* on the east, to the provinces of Quillota and Melipilli on the west, from the province of Aconcagua on the north to the province of Rancagua on the south, from which it is separated by the river Mapo, being a distance from east to west of about forty-five miles, and from north to south of eighty-five miles.

P. 424.—“These plains extend eight leagues towards the river Mapo to the southward of the city, and were incapable of cultivation until a canal had been cut from a point of that river at a higher level than the altitude of Santiago, and conducted along the foot of the Cordillera, to the river Mapocho above the city. All the intermediate grounds upon the extensive plains of Mapo, at a level below the canal, are susceptible of irrigation, but a large portion at a higher level cannot be irrigated, and cannot therefore be cultivated. Another portion of these plains, twenty miles to the northward of the city, is cultivated and irrigated by a rivulet proceeding from the Cordillera, which like the Mapocho river, is expended in irrigation.”

P. 452.—“Rancagua. The province of Rancagua extends from the *central Cordillera* on the east to the Pacific Ocean on the west, from the river Mapo on the north to the river Cochapual on the south, which separates it from the province of Colchagua, being a distance from east to west of about eighty-five miles, and from north to south of forty-five miles. The river Mapo, which bounds the northern limits of this province, rises in the Cordillera, and is principally formed by many tributary streams flowing from the melting snow which falls upon the western side of the Andes to the southward of the Peak of Tupungato. The river Cochapual, bounding the southern limits of the province, rises also in the Cordillera, and flows from that part of the Andes, to the southward of the sources of the river Mapo.”

P. 453.—“The geological construction of the Cordillera, as well as the ranges lying between Rancagua and the sea, are of a similar character to that already described in the latitude of the metropolis.

Vol. 2, map at beginning of volume.

* A. Caldelegueh's Travels in South America, 2 vols., London, 1825, vol. 1, p. 323.

Captain F. B. Head's book,* in which he gives the impressions of his journey across the Pampas and the Andes, has been, and still is, read with interest in South America. In describing his passage over the Cordillera and the mountains immediately adjoining, he observes that the Valley of Uspallata is the upper base of the great range of the Cordillera, and that he was surprised to see that the hills of the Paramillo, which had appeared so lofty, were very humble features compared with the stupendous barrier of the Cordillera. The Cumbre he called also, "the upper ridge of the Cordillera."

It is not necessary to point out to the Tribunal the great authority of Charles Darwin. With that clearness of expression which is peculiar to him, Darwin, from his own observation, defines the lateral limits of the principal Cordillera. He considers it formed by various cordons bounded on the east by the Valley of Uspallata and on the west by the Central Valley of Chile. In his Journal † he says:—

"The Uspallata range *is separated from the main Cordillera by a long narrow plain or basin like those so often mentioned in Chile*; but higher, being 6000 feet above the sea. This range has nearly the same geographical position with respect to the Cordillera which the gigantic Portillo line has, *but it is of a totally different origin.*"

In his Geological Observations, Darwin adds:—

"The basin-like plains at the foot of the Cordillera are in several respects remarkable; that on which the capital of Chile stands is fifteen miles in width, in an

* Rough Notes taken during some rapid Journeys across the Pampas and among the Andes, London, 1826.

P. 137.—"I had ridden on by myself about fifteen miles, and had gained, by a constant ascent, the summit of the Paramillo, the high range of mountains which overhang Villa Vicencia. The view from this point is very interesting. The ground continues level for a short distance, and then rapidly descends towards the valley of Uspallata, which is about thirty miles off.

"This valley is the upper base of the *great range of the Cordilleras*, and it is, at first, surprising to see that the hills of the Paramillo, which had appeared so lofty, are very humble features, compared with the *stupendous barrier* which, in spite of its distance, appears to be on the point of obstructing the passage.

"This enormous mass of stone, for it appears to be perfectly barren, is so wild and rude in its features and construction, that no one would judge that any animal could force its way across the summit, which, covered with snow, in some places eternal, seems to be a region between the heavens and the practicable habitation of man; and indeed, to attempt to pass it, except by following up in a ravine the course of a torrent, would be altogether impossible."

P. 166.—"The torrent which we had so long followed, now turned up the ravine to the right. We had pursued it from the east towards the west, but our path was now obstructed by the *Cumbre, or upper ridge of the Cordillera*, which no artifice can avoid, and which is a mountain covered with loose, decomposed rock, at an angle of very nearly forty-five degrees. At the foot is another of the huts, without door, table, or lintel, and in which many people have died."

† Journal of a Voyage round the World, by Charles Darwin, London, 1896.

east and west line, and of much greater length in a north and south line ; it stands 1750 feet above the sea." . . . The Plain of Uspallata lies "on the eastern or opposite side of the Cordillera, between that great range and the parallel lower range of Uspallata. According to Miers, its surface is 6000 feet above the level of the sea. It is from ten to fifteen miles in width, and is said to extend with an unbroken surface for 180 miles northward. . . . In general appearance and in numerous points of structure, this plain closely resembles those of Chile." *

* Geological Observations in the Volcanic Islands and parts of South America visited during the voyage of H.M.S. *Beagle*, by Charles Darwin, 2nd edition, London, 1876.

Chap. x. p. 283.—"The space between the Cordillera and the coast of Chile is on a rude average from eighty to above one hundred miles in width ; it is formed either of an almost continuous mass of mountains, or more commonly of several nearly parallel ranges, separated by plains ; in the more southern parts of this province the mountains are quite subordinate to the plains ; in the northern part the mountains predominate.

"The basin-like plains at the foot of the Cordillera are in several respects remarkable ; that on which the capital of Chile stands is fifteen miles in width, in an east and west line, and of much greater length in a north and south line ; it stands 1750 feet above the sea ; its surface appears smooth, but really falls and rises in wide gentle undulations, the hollows corresponding with the main valleys of the Cordillera. The striking manner in which it abruptly comes up to the foot of this great range has been remarked by every author since the time of Molina. Near the Cordillera it is composed of a stratified mass of pebbles of all sizes, occasionally including rounded boulders ; near its western boundary it consists of reddish sandy clay containing some pebbles and numerous fragments of pumice, and sometimes passes into pure sand or into volcanic ashes.

"At Podaguel, on this western side of the plain, beds of sand are capped by a calcareous tuff, the uppermost layers being generally hard and substalagmitic, and the lower ones white and friable, both together precisely resembling the beds at Coquimbo, which contain recent marine shells. Abrupt but rounded hummocks of rock rise out of this plain ; those of Sta. Lucia and S. Cristoval are formed of greenstone-porphry, almost entirely denuded of its original covering of porphyritic claystone breccia ; on their summits many fragments of rock (some of them kinds not found *in situ*) are coated and united together by a white, friable, calcareous tuff, like that found at Podaguel. When this matter was deposited on the summit of S. Cristoval the water must have stood 946 feet above the surface of the surrounding plain.

"To the south this basin-like plain contracts, and rising scarcely perceptibly with a smooth surface, passes through a remarkable level gap in the mountains, forming a true land-strait and called the Angostura. It then immediately expands into a second basin-formed plain ; this again to the south contracts into another land-strait and expands into a third basin which, however, falls suddenly in level about forty feet. This third basin to the south likewise contracts into a strait and then again opens into the great plain of S. Fernando, stretching so far south that the snowy peaks of the distant Cordillera are seen rising above its horizon as above the sea. These plains near the Cordillera are generally formed of a thick stratified mass of shingle, in other parts of a red sandy clay, often with an admixture of pumiceous matter.

"Although these basins are connected together like a necklace, in a north and south line by smooth land-straits, the streams which drain them do not all flow north and south but mostly westward, through breaches worn in the bounding mountains, and in the case of the second basin, or that of Rancagua, there are two distinct breaches. Each basin, moreover, is not drained singly ; thus, to give the most striking instance, but not the only one, in proceeding southward over the plain of Rancagua, we first find the water flowing northward to and through the northern land-strait, then, without crossing *any marked ridge or watershed*, we see it flowing south-westward towards the northern one of the two breaches in the western mountainous boundary ; and lastly, again without any ridge, it flows towards the southern breach in these same mountains. Hence the surface of this one basin-like plain, appearing to the eye so level, has been modelled with great nicety, so that the drainage without any conspicuous watersheds is directed towards three openings in the encircling mountains. The streams flowing from the three southern basin-like plains, after passing through the breaches to the west, unite and form the river Rapel which enters the Pacific near Navidad. I followed the southernmost branch of this river and found that the basin or plain of S. Fernando is continuously and smoothly united with those plains which were described in the ninth chapter, as being worn near the coast

Darwin was a most accurate observer of the physical geography of the Cordillera and its environs, and the special attention of the Tribunal is called to what he says concerning the hydrography of the central valley and its watershed, and also to the complete division of the Cordillera in Obstruction Sound, as he refers to features which the Argentine Expert has taken into consideration when proposing some of the points of the boundary line, and in rejecting others proposed by the Chilian Expert.

into successive cave-eaten escarpments, and still nearer to the coast, as being strewn with upraised recent marine remains.

"I might have given descriptions of numerous other plains of the same general form, some at the foot of the Cordillera, some near the coast, and some half-way between these points. I will allude only to one other, namely the Plain of Uspallata, lying on the eastern or opposite side of the Cordillera, between that great range and the parallel lower range of Uspallata. According to Miers, its surface is 6000 feet above the level of the sea: it is from ten to fifteen miles in width, and is said to extend with an unbroken surface for 180 miles northwards: it is drained by two rivers passing through breaches in the mountains to the east. On the banks of the R. Mendoza it is seen to be composed of a great accumulation of stratified shingle, estimated at 400 feet in thickness. In general appearance, and in numerous points of structure, this plain closely resembles those of Chile."

Chap. x. p. 295.—"Now if we suppose that the sea formerly occupied the valleys of the Chilian Cordillera, in precisely the same manner as it now does in the more southern parts of the continent, where deep winding creeks penetrate into the very heart of, and in the case of Obstruction Sound quite through, this great range; and if we suppose that the mountains were upraised in the same slow manner as the eastern and western coasts have been upraised within the recent period, then the origin and formation of these sloping terrace-like fringes of gravel can be simply explained."

Chap. x. p. 299.—"We shall hereafter see, that of the two main ridges forming the Chilian Cordillera, the eastern and loftiest one owes the greater part of its *angular* upheaval to a period subsequent to the elevation of the western ridge: and it is likewise probable that many of the other parallel ridges have been angularly upheaved at different periods; consequently many parts of the surfaces of these mountains must formerly have been exposed to the full force of the waves, which, if the Cordillera were now sunk into the sea, would be protected by parallel chains of islands."

Chap. xiv. p. 470.—"The district between the Cordillera and the Pacific, on a rude average, is from about eighty to one hundred miles in width. It is crossed by many chains of mountains, of which the principal ones, in the latitude of Valparaiso and southward of it, range nearly north and south; but in the more northern parts of the province they run in almost every possible direction. Near the Pacific, the mountain ranges are generally formed of syenite or granite or of an allied eritic porphyry; in the lower country, besides these granite rocks and green-stone, and much gneiss, there are, especially northward of Valparaiso, some considerable districts of true clay-slate with quartz veins, passing into a feldspathic and porphyritic slate; there is also some grauwaacke and quartzose and jaspery rocks, the latter occasionally assuming the character of the basis of clay-stone porphyry: trap-dikes are numerous. Nearer the Cordillera the ranges (such as those of S. Fernando, the Prado, and Aconcagua) are formed partly of granite rocks, and partly of purple porphyritic conglomerates, clay-stone porphyry, green-stone porphyry, and other rocks, such as we shall immediately see, form the basal strata of the *main Cordillera*. In the more northern parts of Chile, these porphyritic series extend over large tracts of country far from the Cordillera; and even in central Chile such occasionally occur in outlying positions."

Chap. xiv. p. 515.—"The Plain of Uspallata has been briefly described in Chapter x.; it resembles the basin plains of Chile: it is ten or fifteen miles wide, and is said to extend for 180 miles northward; its surface is nearly 6000 feet above the sea; it is composed, to a thickness of some hundred feet, of loosely aggregated stratified shingle, which is prolonged with a gentle sloping surface up the valleys in the mountains on both sides."

It is well to mention that, according to the opinion of Darwin, and as affirmed by all the scientific authorities and statesmen of Chile, the city of Santiago is situated on the west of the Cordillera de los Andes, and therefore it must be inferred that the Maipu Valley, the military fort San Martin de los Andes, the Colony of the Valle Nuevo, the Colony "16 de Octubre," and many others of the points which the Chilean Expert considers to be comprised in the Cordillera, are nevertheless outside and eastward of it.

Captain Allen F. Gardiner,* who crossed the Cordillera in 1840, affirms that *the highest points of it form the boundary with Argentina*; but an even higher authority than Gardiner, by reason of the nature of the investigations he conducted, is Lieutenant H. J. M. Gilliss, Superintendent of the Naval Astronomical Expedition of the United States to the Southern Hemisphere, from 1849 to 1852.

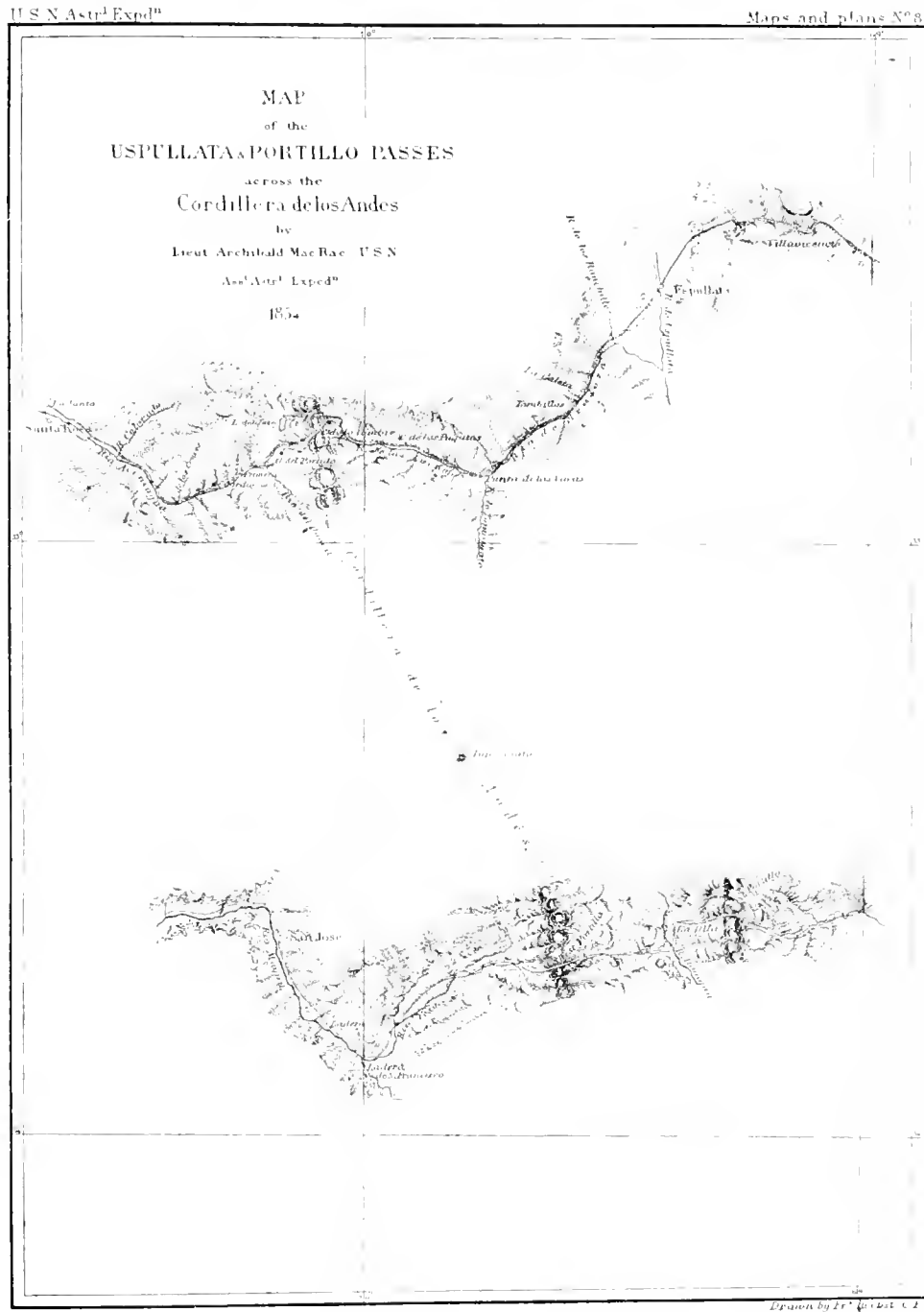
Gilliss defines Chile thus:—

"When the Republic took its place among the nations of the earth, Chile consisted but of the narrow strip of land lying between the *highest peaks of the Andes* and the Pacific, and the twenty-fourth and fifty-sixth degrees of south latitude."

He considers, *as the Central Cordillera*, the eastern ridge of the *Cordillera de la Costa*, separated by the intermediate plain from the "Cordillera de los

* A Visit to the Indians on the Frontiers of Chile, by Captain Allen F. Gardiner, R.N., London, 1840.

P. 63.—"On the following day, the third since leaving Uzpallata, we reached the long-expected "Cumbre" by a zigzag path leading directly up from the rest-house we had just left, but so exceedingly steep, that independent of some patches of deep snow which it was necessary to cross, it was with great difficulty we could urge our tired horses along, although we had dismounted to relieve them during a part of the ascent. Having at length gained the summit, we sat down for some little time, while the mules were unloading, but without in the least degree experiencing that difficulty of respiration, called the "puna," which has been described by some. If such be the case, of which there can be no doubt, since it has been asserted by many whose accuracy cannot be questioned—its existence and degree must no doubt depend upon the state of the atmosphere and the particular season of the year. Instead of the number of peones previously stipulated for, only six met us at this point, having awaited our arrival at the nearest rest-house; but as the people who accompanied us from Mendoza were now about to return with the mules, and also my horses, which I had hoped to have led across the snow, we had only the addition of our unworthy capitaz to this weak and insufficient party. However, to do them justice, they worked well, and as it was no time for delay, I was obliged to work also. The day was beautiful, and although we were at the reputed height (for it has never been accurately computed) of 14,000 feet above the level of the sea, I laid aside my coat as an unnecessary incumbrance, while occupied in converting the children's panniers into a pair of mountain palanquins. This was effected by merely cutting an opening in the hide on one side for the feet to hang down, and slinging each of them to a tent-pole. Two men were found sufficient for each; the two children being seated together in one, and Mrs. Gardiner in the other. We had now entered Chile, the highest point of the Cordillera forming the boundary, and in this singular manner we commenced the descent towards the second rest-house on that side; which from necessity was to be our halting-place for the night, as it was found quite impossible for so small a party of peones to convey the baggage further in one day, notwithstanding it was drawn for more than two-thirds of the distance upon the snow, instead of being carried as agreed."



J. M. GILLISS, 1856.

(From The U.S. Naval Astronomical Expedition to the Southern Hemisphere.)

Andes," which ridge is crossed by the rivers that take their rise, "not far from the highest summits of the Andes," taking thus as the "Cordillera" only those highest summits, as shown on Plate 8 of his work, inserted here in facsimile.

He confirms the statement of Schmidtmeier by adding:—

“ But in the Spanish language ‘Cordillera’ means a chain of mountains, and one may say ‘Cordillera de la costa’ with the same propriety as ‘Cordillera de los Andes.’ However, when Creoles speak of ‘La Cordillera,’ they mean invariably ‘the Andes.’ ” *

* From The U.S. Naval Astronomical Expedition to the Southern Hemisphere during the years 1849–50–51–52, Lieut. J. M. Gilliss, Superintendent. By Lieut. J. M. Gilliss, Philadelphia, 1856.

Vol. 1, p. 2.—“ Thus, when the Republic took its place among the nations of the earth, Chile consisted but of the narrow strip of land lying between the highest peaks of the Andes and the Pacific, and lat. 24° and 56° S.”

P. 3.—“ Beginning in the extreme north, the *principal chain of the Andes* rises higher and higher to lat. 35°, from whence southward the declension of its prominent points is not less uniform. In central Chile, it is composed of two lofty and several lower ranges of mountains, enclosing lakes whose frigid waters teem with animal life, in the midst of longitudinal valleys often of exquisite beauty and fertility; black gorges and chasms, with roaring torrents, beside which the nervous stand tremblingly; oases with trickling rivulets to charm the lover of sylvan beauty; deserts on which, for many continuous leagues, nature has never vouchsafed a leaf of verdure; and black and broken masses of rock towering to mid-heaven, on which the snow has rested since the convulsion that raised them above the line of perpetual congelation. . . . ”

P. 4.—“ Very little reliable information has ever been obtained of the Cordilleras either north or south of the central provinces. Bleak, precipitous, and barren sides deter all other natives than professional mine-hunters from encountering the almost unendurable privations inevitably attending their exploration, and these men have intelligence only of metallie veins. The few scientific individuals who have taken a day or two from other occupations whilst in this out-of-the-way quarter of the globe, have only traversed the beaten passes of the Portillo and Cumbre, not unfrequently deducing general theories from knowledge of individual localities. In the course of a trigonometrical survey for the Government, Señor Pissis has explored from lat. 32° 20' to lat. 34°, as far east as the *culminating ridge*, and he has kindly furnished me with a small copy of his map. Except of the several passes into the Argentine territory, and a few places of noted interest visited by Professor Domeyko, very little is known beyond those parallels.”

P. 13.—“ Table showing the heights of some of the principal mountains and mountain passes in Chile above sea-level:—

Name.	Chain to which it belongs.	Latitude.	Longitude.	Height in Feet.	Height of Perpetual Snow.	Remarks.
Portezuelo Come Caballo .	Andes	27 36	69 20	14,521	14,784	Fossil shells abound.
Cordillera de Doña Ana .	..	29 51	69 52	13,431	..	
Portezuelo Doña Ana .	..	..	..	14,849	..
Cordillera de la Laguna .	..	30 30	69 23	15,575	..	Snow sometimes remains all summer.
Aconcagua . . . . .	..	32 38	69 57	22,301	..
Campana de Quillota .	Cordilleras	32 57	71 06	6,053	..	Observations of Lieut. MacRae
Cumbre Pass . . . . .	..	32 49	70 07	{ 12,488 } 12,656	..
Juncal	Andes	33 05	69 48	20,368	..	Observations of Lieut. MacRae.
San Francisco . . . . .	..	33 12	70 12	16,998	..
Cerro Amarillo	Cordilleras	33 18	70 54	7,316	..	
Cerro del Plomo	Andes	33 19	70 07	17,825	..	Observations of Lieut. MacRae.
Tupungato . . . . .	..	33 22	69 51	22,450	11,480
Cuesta Prado	Cordilleras	33 25	70 50	6,083	..	
La Vinilla	33 26	71 14	5,357	..	Observations of Lieut. MacRae.
Portillo, East Pass	Andes	33 35	69 46	14,315	..	
Portillo de los Pinguenes .	..	..	..	13,362	..
San José	33 42	69 54	18,150	..	

Elwes, who crossed also the Cordillera, says :—

“We were now in a large valley, which for wildness and savage grandeur was equal to anything I have ever seen. In front was *La Cumbre*, the dividing ridge, serrated at the

Name.	Chain to which it belongs.	Latitude.	Longitude.	Height in Feet.	Height of Perpetual Snow.	Remarks.
San Pedro Nolasco	Andes	33 46	70 15	10,952	..	
Horcon de Piedra	Cordilleras	..	..	7,313	..	
Aculeo . . . . .	..	33 55	70 50	4,888	..	{ A mine of argen- tiferous lead.
Cerro de Allme . . . . .	..	33 59	70 54	7,332	..	
Cruz de Piedra	Andes	34 12	70 03	17,126	..	
Maypu . . . . .	..	34 17	69 43	17,664	..	
Descabezado . . . . .	..	35 00	71 03	13,100	8,455	
Cerro Coligual	Cordilleras	36 50	72 15	807	..	
Volcano of Antuco	Andes	37 07	71 02	9,245	6,594	
Volcano of Llayma . . . .	..	38 50	72 03	not known	..	Active vole. 1852.
Volcano of Villarica . . .	..	39 14	71 57	16,000 (?)	..	Active vole. 1852.
Cuesta Paragudchue . . .	Cordilleras	40 02	73 15	511	..	
Volcano of Osorno	Andes	41 09	72 36	7,550	4,800	
Volcano of Minchinmadom .	..	42 48	72 31	8,000	..	
El Corcovado . . . . .	..	43 12	72 50	7,510	..	
Yanteles . . . . .	..	43 29	72 48	8,030	..	

P. 19.—“ But in the Spanish language “cordillera” means “a chain of mountains,” and one may say “*cordillera de la costa*” with the same propriety as “*cordillera de los Andes*.” However, when Creoles speak of “*la cordillera*” they mean invariably the Andes. . . . It has already been stated that Chile, north of 33°, is a series of mountains, extending from the Ocean to the Andes, without any continuous chain which could properly come within the definition of *cordillera*, as meant by Dr. von Tschudi: but the Coquimbo, whose waters do continue to the Pacific, has its origin near the *highest range of the Andes* eastward of long. 70°, and thence works its way. From Chacabuco, south, we have seen that the Andes are composed of separate ranges of mountains, three being sometimes distinctly visible between the plain and the *highest range*.”

P. 20.—“Now I shall show that every river of consequence in Chile has its source not far from the *highest summits of the Andes*, traverses the intermediate plain in an average direction west by south, penetrates the central Cordilleras, and discharges its waters in the Pacific. Some few tributaries are exceptions to the law, and in one instance (the Biobio) they somewhat influence the course of the main stream after junction: but it originates in the Andes, and otherwise fulfils the rule.”

P. 23.—“The Descabezado, one of the summits in the fourth range counted from the plain, is still some miles to the southward of the dividing line of waters, from which, to the junction of the Loncomilla at the eastern base of the western Cordilleras, the Maule has few tributaries, and flows in a serpentine line with a resultant direction west by south. At the same time, here as well as at many other points of the Andes, the hills separating the waters from those that fall to the Atlantic are invariably less elevated than the line which would connect the great cones or peaks. Deriving its supply in summer wholly from melting snows, the stream is deeper and more rapid during the earliest warm days, when the sun’s heat is first powerful in the lower and sheltered ravines.”

Vol. 2, p. 6.—“Concluded my work in the calm of the morning, and at seven o’clock set out for *the Cumbre*, or *summit of the range*, where we arrived about ten A.M.; but found the wind so strong that it would have been impossible to set up the instruments: we therefore retraced our steps across the snow to the Casucha de la Cumbre, about half a mile from the pass. The road from the Alto de la Laguna, after ascending a tolerably steep hill to the right, continues for about three miles up a valley not very steep or stony, passing, about half-way, the Casucha de las Calaveras, and arrives at the foot of the steep part of what may be called the spine of the Cordillera. Here there is no longer a stream to follow, but the ascent must be accomplished by

top with a succession of rocky pinnacles. To cross this would have been a difficult undertaking, had it not been for the disintegration of the rock, which had run down in steep slopes. . . . At length we arrived at the *summit of the ridge*, and looked down some huge ravines into Chile. It was a fine picture of wild mountain scenery.”*



LA CUMBRE. ROBERT ELWES, 1854.

(From *A Sketcher's Tour round the World*.)

The plate reproduced from Elwes' book, shows the true idea conveyed by the expression "La Cumbre," an idea which has been the same from the colonial epoch till now.

zigzags up the ridges. This is necessarily a very slow process, and frequently one finds himself but a few feet advanced after toiling over a great deal of ground.

* R. Elwes, *Sketcher's Tour round the World*, London, 1854, pp. 148 and 149.

3. OPINION OF SEVERAL AUTHORS OF POPULAR WORKS.

The opinion of the aforementioned explorers, and of others who are not quoted in order not to unduly lengthen this statement of facts, was the one made use of by those who, not being personally familiar with the majestic range of mountains, described it in popular works with a fair amount of general exactitude, according to the knowledge at that time. These descriptions, and for a restricted number of observant people, the special surveys hereinafter mentioned, caused the general opinion in Chile, that the boundary between the two countries could not be other than the highest crest of the main chain of the Cordillera, without any consideration of this crest being intersected by streams which took their rise in the east.*

No one could ignore the fact that this was really the case, but no one could fail to know likewise that this same feature existed with regard to other chains of mountains which divide nations and provinces, and that their highest summits were chosen as the most suitable boundary, although the principal slopes of these were intersected.

The Manual of Geography by G. H. Von Kladen, published in 1862.† contains a perfect summary of what was considered at that time to constitute the *Cordillera de los Andes*.

* These are spoken of as rising in the east, as it is well known that there are no streams in the whole length which intersect the mountain range from west to east.

† Handbuch der Erdkunde, Berlin, 1862, Part iii. p. 546.

"*The Cordilleras*.—The mighty mountain-system, running through the whole of South America from the south point to the Isthmus of Panama, begins at the south point of the continent, for Tierra del Fuego is but a disrupted part of it. Low lying in the south, but cut up by deep valleys, the Cordilleras rise further in the north, so that at lat. 42° S., in the region in which to the east lies a system of lakes and the great reservoir of Nahuelhuapi, they present a mighty mountain-system."

"Of the Patagonian Cordillera, from Cape Froward, lat. 54° S., apparently 4500 to 5500 feet high, and covered with the most luxuriant forests, the produce of a moist, moderately warm climate, we know but little. Besides the *main Cordilleras*, there runs on their west side a secondary lateral chain which, in the direction of the length of the continent, forms the island of Chiloe, the Chonos Archipelago, the peninsula of the three mountains, the Archipelago of the Madre de Dios, and finally, the manifoldly splintered islands in the same series with Tierra del Fuego. This coast chain consists of mica schist and a tertiary argillaceous sandstone containing lignite, and has rounded tops and plateaux covered for the most part with impenetrable primeval forest. It is as much as fifteen stunden (about forty-five miles) broad and is cut up by navigable streams. Across the less steep eastern slope, which gradually sinks down to the pampas, there stretch eastern spurs rising abruptly out of the plain, but in Patagonia assuming the shape of rocky terraces rising, stage on stage, to the west. Along the west foot of the chain, on the other hand, there stretches a series of seven quite considerable lakes.

"The highest peaks, transcending the snow-line, which from lat. 55° to 50° S., reaches to 2250 feet high, are (in Tierra del Fuego) the Darwin and the Sarmiento, Burney, Moores. The presumed volcanoes are

He distinguished the *principal Cordillera* from the *Cordillera de la Costa*. He mentions the system of lakes existing on the west of the latter: notes the irregularity of the crests, which are thrust to the west and the east of the axis, containing the *Cordillera* further to the north, and in short, insinuates that obviously there is no constant continuity of mountain chain, and that the woodcutters confidently assert, *that the chain is intersected by several similar deep gorges.*

J. Malte-Brun* describes Chile in the following manner :—

“ The exterior configuration of Chile consists of a long coast line, two Cordilleras (the main Cordillera and the Cordillera de la Costa), two other groups of mountains and an immediate slope. The country is bounded on the north by the Bolivian Republic, from which it is separated by *the great Atacama Desert*; on the east by the Argentine or La Plata Republic, from which it is separated by the *lofty Cordilleras de los Andes*; and finally on the south and west by the Pacific Ocean.”

M. Bescherelle, Senior, † states :—

“ Chile is a South American Republic, bounded on the north by Bolivia, on the east by the La Plata Confederation, on the south by Patagonia, and on the west by the Pacific Ocean; between lat. $25^{\circ} 20'$ and 44° S., and between long. 72° and 77° . The ground ascends gradually *from the shores to the Andes, which form the natural boundary of Chile on the east.*”

Don Baldomero Menendez ‡ states :—

“ The Republic of Chile consists of a part of Western South America, of an elongated, irregular quadrilateral form, and shut in on the east and west between the great ocean or the Pacific Sea and *the Andes*. . . . Chile seeks to incorporate in its states *all the western coasts of Patagonia*, and the day in which it realises this great ideal, it will command the waters of the great ocean from the frontiers of Bolivia to Cape Horn . . . with the Argentine or the La Plata Confederation and Patagonia on the east, *the Cordillera de los Andes being its natural boundary and frontier.*”

from south to north: Yanteles, Corcovado, Minchimavida or Chayapiren, Calbuco, Osorno (known for certain to be a volcano). The floor of the valleys lies here hardly at sea-level, and therefore, to the south of lat. $41^{\circ} 50'$ S., the western valleys are all occupied by arms of the sea, appearing like rivers, and intersecting the land quite in the manner of rivers. In this part of the Cordilleras the crest-line has no uniformity. Deep gorges with steep walls penetrate deeply into it, as far as Magellan Straits, the summits are thrust to the west and the east of the axis containing the Cordillera farther to the north. Obviously, too, there is here no constant continuity of mountain-chain. In fact an expedition, which made its way from the west coast to the great lake of Nahuelhuapi, encountered no greater height than from 1500 to 2400 feet, and the woodcutters say with assurance that the chain is cut by several like deep indentations.”

* Malte Brun, *La Geografía Universal*, Madrid and Barcelona, 1853, vol. 2, p. 456.

† *Grand Dictionnaire de Géographie Universelle*, etc., Paris, 1857, vol. 2, p. 243.

‡ *Enciclopedia Hispano-Americana. Manual de Geografía y Estadística de Chile*, Paris, 1860, p. 27.

Ritter* says :—

“Chile, an independent state on the west coast of South America, situated on the shores of the Pacific Ocean, and on the west side of the Andean range, extending from lat. $25^{\circ} 25'$ to $43^{\circ} 57'$ S., is bounded on the east and south by the state of La Plata and Patagonia, and on the west by the Pacific Ocean. In length it is about 1100 English miles, and breadth from 110 to 120 English miles. The entire country presents an irregular surface, *sloping from east to west, that is to say from the Cordilleras to the sea. . . . The stupendous range of the Andes forms its eastern boundary.*”

Adrien Guibert† says :—

“Chile, South American state, on the Pacific Ocean. . . . Between lat. $25^{\circ} 20'$ and 44° S., long. 72° to 77° W. Bounded on the north by Bolivia, the United States of La Plata on the east, Patagonia on the south, the Pacific Ocean on the west. . . . Length from north to south about 1850 kilometres, average breadth about 175 kilometres. . . . A very mountainous country, *protected by the Andean ridge on the east.*”

Mr. Daniel J. Hunter‡ says :—

“*Chile lies west of the Andes, and between the parallels of lat. 23° and $53^{\circ} 59'$ S.; having a coast line of about 2270 miles and a breadth varying from 200 miles to 40 miles. Chile is bounded N. by lat. 23° S. which separates it from Bolivia, E. by the Andes, which form the dividing line between it and the States of the Argentine Confederation, S. and W. by the Pacific Ocean. It includes in its territory all the Patagonia west of the Andes, as the Argentine Confederation does that portion lying east of those mountains.*”

Ripley and Dana§ say :—

“Chili or Chile, a Republic of South America, lying west of the Andes, and between the parallels of lat. 23° and $55^{\circ} 59'$ S., having a coast line of about 2270 miles and a breadth varying from 200 miles to 20 miles. . . . Chile is bounded north by lat. 23° S., which separates it from Bolivia, east by the Andes, which form the dividing line between it and the States of the Argentine Confederation, south and west by the Pacific Ocean. It claims to include in its territory all Patagonia west of the Andes, as the Argentine Confederation does that portion lying east of those mountains.”

Mr. William Hughes|| says :—

“Chile is a long, narrow country on the western side of South America. Upon the

* Ritter's Geographisch-statisches Lexicon, etc., Leipzig, 1864, vol. 1, p. 316.

† Dictionnaire géographique et statistique (authorised by the University), Paris, 1865, p. 481.

‡ A Sketch of Chile, expressly prepared for the use of Emigrants from the United States and Europe to that country, New York, 1866, p. 6.

§ New American Cyclopedia: a popular dictionary of general knowledge, New York and London, 1868, vol. 5, p. 77.

|| Professor of Geography at King's College, London: A Manual of Physical, Industrial and Political Geography, London, 1869, p. 602.

east it is *bounded by the stupendous chain of the Andes*, which divide it from the Province of La Plata; upon the north by Bolivia; on the west and south by the Pacific Ocean. The length of Chile from north to south is 1150 miles, *but its breadth nowhere exceeds 130 miles*, and is less than 90 miles towards the northern extremity of the country."

In a Compendium of Geography* for the schools of the Republic of Chile it is stated:—

"Chile is a beautiful country situated on the south-west portion of America, between lat. 24° S. on the north, and 56° S. on the south; it is bounded on the north by Bolivia, *on the east by the Cordillera de los Andes*, on the south by the Southern Ocean, and on the west by the Pacific Ocean."

M. Onésime Reclus † states:—

"The Republic (Argentina) has an area of 156 million hectares, three times that of France, without extending beyond Bermejo on the north, or the River Negro of Patagonia on the south. Including the hot plains of the Gran Chaco, disputed by Bolivia, and by Paraguay when Paraguay was powerful—and cold Patagonia, to which Chile *in vain* lays claim, the territorial area of the Argentine Republic amounts to 297 million hectares, more than five times that of France. . . .

"At the Strait of Magellan, at the entrance of which the tide rises to a height of from 15 to 20 metres, the continent terminates. From the other side of the strait, as far as Cape Horn, Tierra del Fuego, an island in which some mountains, covered with eternal snow, exceed 2000 metres in height, *nominally forms part of Argentine territory, like Patagonia. . . .*"

"The Andes make their first appearance in the Cape Horn mountain (1000 metres), a formidable rock, in front of which a tremendous sea runs. From island to island, the chain reaches the continent, and pushes northwards under the name of the Patagonian Cordillera. In the immediate vicinity of the Pacific, it separates the Chilian coast from the broad and chilly deserts of Patagonia, claimed in vain by Chile; *the location of which on the east of the Andes bringing them indisputably within the sphere of Buenos Aires.*"

Professor Dr. C. Wappäus ‡ in his description of Chile, says that as it is stated in her Constitution, the boundary of this country to the west is the *Cordillera de los Andes*, and this opinion is of value, Dr. Wappäus having made the largest collection of historical, statistical and geographical works on Chile.

* Compendio de Geografía para las Escuelas de la República, official edition, Santiago de Chile, 1871, p. 12.

† Géographie, Paris, 1872, pp. 569, 573 and 578.

‡ Panamá, New Granada, Venezuela, Guayana, Ecuador, Perú, Bolivia und Chile geographisch und statistisch dargestellt, Leipzig, 1863–1870.

M. Louis Grégoire * says :—

“Chile, a South American State on the Great Ocean, between lat. $25^{\circ} 20'$ and 44° S. and between long. 72° and 77° W. [Chile has taken lat. 23° S. as its northern boundary, and even claims the possession of the country up to lat. $21^{\circ} 48'$ as being the frontier of the ancient Chilian Captaincy.] It touches Bolivia on the north by the Atacama Desert; *the Andes separate it on the east from the Argentine Confederation*; on the south it reaches to the Strait of Magellan, but in reality, it terminates in the islands of Chiloé and Chonos, which belong to her. *The Chilian Andes are very lofty.*”

The Encyclopædia Britannica † (9th edition, 1875) describes the Andes thus :—

“The range may be considered as commencing on the south with Cape Horn, although for several degrees it is much broken up by arms and straits of the sea. . . . The Strait of Magellan *also cuts through and across the range*, isolating the mountainous islands of Clarence and Santa Inés. *Otrway Water cuts through the range* and penetrates to the plain of Patagonia. North of this are several snowy eminences, and in some places glaciers descend almost to the sea-level. At Last Hope Inlet, or a little north of 52° S., we have the commencement of the Andes, as a continuous range, Disappointment Bay being the most northern place where the Pacific reaches the plains to the east of the Andes. . . . *The highest part or crest of the range is close to the sea*, and consequently the streams which fall into the Pacific are all small. . . . Among the more conspicuous are Mount Yantales, 8030 feet, Mount Melimoyu, 7500 feet, Mount Corcovado, 7510 feet, and Mount Minchinmadiva, 7406 feet above the sea-level. . . . In Chile the Andes increase in height and width, and between about 38° and 23° run approximately north and south, and nowhere do they recede so far from the sea as in the southern part of Chile. . . . *Across these ranges there is a pass*, which, with the exception of those near the mountains of Osorno and Villarica, is the most southern in Chile. The summit of this pass is not more than 12,000 feet above the sea. The pass of Planchon lies north of Mount Descabezado, and to the south of Peteroa is the pass of Las Damas, which is probably not more than 11,000 feet at its highest point. At the head of the Maypu Valley *a pass traverses the two ranges of the Andes* as well as the included valley of Tunuyan. That through the western range is called Piuquenes Pass, and rises to 13,210 feet above the sea-level, while that through the eastern range is called Portillo and rises to 14,385 feet above the sea. Near $32^{\circ} 38'$ S. Aconcagua rises to 23,290 feet, and is, so far as known, the highest peak in America, and the highest volcano in the world. A little to the south of it is the *Cumbre or Uspallata Pass*. In the western range it rises to 12,454 feet above the sea, and on its north flank is the pass of Los Patos. At about 30° S. the mountainous system becomes more complicated, owing to the appearance of several ranges which rise out of the plains towards the north-west corner of the Argentine Confederation, some of which run north and join in the lofty highlands of the Bolivian Andes. *It is doubtful whether all strictly belong to the Andes.* Thus in the

* Dictionnaire Encyclopédique d'Histoire, de Biographie, de Géographie, Paris, 1872, p. 463.

† Article *Andes*.

latitude of Coquimbo, where both the mountains and the coast-line trend somewhat to the east of north, there are three parallel mountain ranges. *The western is called the Andes, the central range is known as the Sierra Famatina, and the eastern as the Sierra Velasco.* The two latter ranges are quite isolated from the first-mentioned range, terminating abruptly on the north and south. North of 28° S., however, a number of Sierras which rise from the Argentine plain form an extensive mass of mountains. These are continuous into the Cordilleras de los Valles, de Despoblado, and Abra de Cortaderas, which form the eastern margin of the lofty mountain plains of Bolivia. *These plains slope down from the eastern side of the Andes, just as the Atacama Desert seems to form part of the western slope.*"

M. Vivien de Saint-Martin * says:—

"ANDES. Cordillera de los Andes, *Cordillera* (i.e. chain) of the Andes. A great chain of mountains which is situated on the west coast of South America along its whole extent, from Patagonia to the beginning of the Isthmus of Panama. . . .

"From lat. 53° S., where it commences near the Straits of Magellan, to lat. 8° N., where it ends at the Isthmus of Darien, the chain of the Andes presents, with its curves, a length of 7200 kilometres (4470 miles). Its greatest breadth is from 250 to 300 kilometres (155 to 190 miles), its least breadth about 90 kilometres (56 miles). It is in Chile, between lat. 35° and 40° S., that its crest is furthest from the sea, and the distance is 260 kilometres (160 miles); where it is nearest the sea at lat. 18° S., the distance is only 30 kilometres (19 miles). For the sake of greater clearness in the description of so long a chain, its different parts are distinguished according to the countries which they traverse. The Andes of Patagonia are little known, but it is certain that their height is much less than that of the Chilian Andes. The two highest summits which have been determined, the Yanteles and the Michimnadam, are 2447 and 2438 metres (8028 and 7999 feet). . . .

"AMÉRIQUE. In South America the chain keeps its native name, the Andes. The Spaniards say '*Cordillera de los Andes*,' chain of the Andes, *when it has happened that foreigners have sometimes made a proper noun of the generic term saying simply 'the Cordillera.'*"

These opinions are also confirmed by maps of good general authorities which are quoted at foot. †

* Nouveau Dictionnaire de Géographie Universelle, par M. Vivien de Saint-Martin, Paris, 1879, vol. 1.

† Maps of South America, exhibiting the Political Divisions of the Republics of Columbia, Perú, Chili, the United Provinces, and the Empire of Brazil, printed for C. Smith, London, 1825, represent the Western Chain of the Cordilleras de los Andes in a continuous chain.

Nouvelle Carte de l'Amérique Méridionale, par A. H. Brué, Paris, 1834, gives *Cordillera Nevada de los Andes* to the western range.

The Continent and Islands of South America, London, 1837, gives "*Cordillera de Sierra Nevada*."

South America, S. J. Arrowsmith, 1816, gives "*Sierra Nevada, Cordillera Nevada of the Andes*."

South America, H. Kiepert, Weimar, 1849, gives "*Cordillera of the Andes*."

Schoolroom Map of South America, J. Gellatly, Edinburgh and London, 1852, gives "*Andes or Cordillera*."

Carta della America Meridionale, S. Stucchi, Turin, 1861, gives the title of "*Grande Catena delle Ande o Cordigliere*" to the western range, and separates Patagonia from "Nuovo Chile" by the "*Cordigliere Nuova*."

Colton's Map of South America, New York, 1862, gives "*Cordillera of the Andes, Snowy Cordillera*."

Mapa Físico y Político de la América del Sur, A. Vuillemin, Paris, 1867, gives "*Cordillera de los Andes*" to the range of the west, showing it cut by rivers.

There appears amongst them the Mapa Original de la República Argentina y estados adyacentes comprendiendo las Repúblicas de Chile, Pařaguay y Uruguay, by Dr. Petermann (1875), to which reference was undoubtedly made in the statement read by the Representative of Chile before the Tribunal, on May 8, 1899, attributing it to Dr. Burmeister. That map considers the San Francisco Pass as situated in Argentine territory, and the Lake Lacar in Chile, but, in this case, the Cordillera de los Andes is represented to the east of the lake. It is convenient also to quote here the map of "Chile" constructed by means of the best official charts and explorations, by M. T. O., 3rd edition, drawn on a smaller scale from that which was corrected under the direction of the Rector of the National Institute, Señor Don Diego Barros Arana, augmented with the latest developments in railways, new departments, light-houses, etc., and under this general title:—

"Fresh additions made on completing the present edition. This edition has been newly revised by Señor Barros Arana, R. del I. N. (Rector of the National Institute of Chile)."

One of the additions is the line of the occupations of territory made to date, a line which appears traced from the volcano of Lonquimay to Angol, and from

Mapa de la República Argentina y Repúblicas del Uruguay, Paraguay y Chile (corrected from the most modern documents by the Engineer, A. A., Pablo E. Coni, Buenos Aires, 1868), gives "*Sierra de los Andes*" cut by several rivers.

Mapa Original de la República Argentina y Estados adyacentes comprendiendo las Repúblicas de Chile, Paraguay y Uruguay. Compiled from the latest works issuing from the office of the National Engineers (of the Argentine Republic), from the different provincial Topographical Departments, and from other materials gathered or supplied by the Council of Engineers, Don Juan Czetzy, Don Pompeyo Moneta, head of the office of National Engineers, Mayor Don F. Ignacio Riekard, F.R.S.E., and others. By Doctor A. Petermann (2nd complete edition), including Patagonia as Argentine territory. Scale 1 in 4,000,000. Gotha, Justus Perthes. Includes from 21° 30' to 42°, denominates as "*Cordillera of the Andes*" the western chain, and figures the boundary with Chile in its ridge dividing the waters, passing by the Pass of Maricunga and leaving in Argentine territory the Cerro of San Francisco; leaves Lake Lacar to Chile, but draws the Andean chain to the east of the latter.

H. Kiepert's *Physikalische Wandkarten VII.*, Süd Amerika, Berlin, 1876, gives the name of "*Cordillera of the Andes*" only to the western range.

Schoolroom Map of South America, Glasgow and London, 1876: "*Andes or Cordillera*" to the western range.

L'Amérique du Sud, E. Andriveau-Gonjon éditeur, Paris, 1878, gives the name "*Cordilleras des Andes*" to the western range, and figures it passing to the west of Lake Lacar, and cut by the outlet of this lake.

Luis Brakebush, 1880 . . . draws the frontier line with Chile by Peñasco de Diego and Cerro Bravo, and the Bolivian frontier line between Cerro Bravo, Cerro Peinado, San Buena Ventura, Pasto de Ventura and the chain of the Diamante, leaving in Argentine territory the Cerro of San Francisco.

H. Kiepert's *Politische Schule-Wandkarte von Süd-Amerika*, Zeichnung von R. Kiepert, 1 in 1,800,000, Berlin, Verlag von Dietrich Reimer, 1880, assigns to all the western range the name of "*Cordilleras de los Andes*," leaving Lake Lacar to the east of the boundary line.

this point to Limaco, the mouth of the Rio Imperial, coast of the Pacific as far as Tolten, prolonging itself from this summit to the south-west, until near the river Calle Calle. A line which shows that this map is anterior to 1881.

In this map appears the course of the river Puelo, cutting the Cordillera de los Andes, having its origin to the east in a large lake; whence flows another river to the east, an affluent of the river Chubut, with this inscription: "Lake and interoceanic communication probable, according to Vidal Gomaz." Further down is represented another interoceanic communication to the Pacific by the river Rabudos (or Aisen), with its origin in the Lake Coluguapi which likewise flows into the Atlantic by the river Deseado.

4. OPINION OF SCIENTIFIC MEN IN THE SERVICE OF CHILE: GAY, PISSIS, DOMEYKO AND ASTA-BURUAGA.

Mention has been already made of several travellers and geographers who have had no official connection with the Republic of Chile; but it will be seen, later on, that the more recent surveys, made by order of the Government of that Republic, in order to obtain more accurate information concerning the country, confirm the opinions of the above-mentioned writers with regard to what was understood by the *Cordillera de los Andes and its crest*; and it will also be seen that at the time the Treaties were framed, and in that which preceded the one signed in 1881, these opinions coincided with the general view held in Chile, viz. that the boundary line was formed by the highest summits of the said "*Cordillera*."

Gay, Pissis, Domeyko, Asta-Burnaga and Barros Arana, justly reputed learned men, gave their opinion, as the result of their investigations, that the traditional boundary was the correct one, and they maintained it on the solid basis of science.

Claudio Gay, the first scientific explorer of Chilian territory, travelled through a great part of it, and what he describes as the result of his personal investigations, justifies the reputation the work has obtained.

In his work* he says that "Chile is separated from the Argentine Republic by *those immense Cordilleras* which extend without interruption, on all

* Historia física y política de Chile.

the western side of South America." In his map of Chile, the boundary is plainly traced upon the basis of what he considered to be the *highest crests of the said Cordilleras*, and these he localised fairly well in the parts which he visited, but failed to do so in those regions which he did not penetrate, especially to the south of Chillán.

It has been stated that Gay visited Lake Lacar, but this is entirely without foundation. At the time of his journey to Valdivia, the region lying contiguous to the lake, to the east of Lake Rihue, was occupied by hostile Indian tribes, and he could only make his map of this part by referring to others, no doubt already printed, which were very inaccurate.

Contemporaneously with Gay, Señor A. Pissis, Don Ignacio Domeyko, and Don R. A. Phillippi were pursuing similar investigations in Chile.

In 1849 the Government of Chile entered into a contract with Señor Amado Pissis to make the survey for a topographical map of the country, and the President of the Republic, Don Manuel Bulnes, reported the contract to the Congress in these terms :—

"It was an imperative necessity to have an exact map which, while exhibiting the geological and mineralogical features of Chile, marked out all the most notable points of the country, their altitudes above the level of the sea, and the *culminating line of the Cordillera between the slopes that descend to the Argentine provinces and those that water the Chilean territory.*"

And the Minister of the Interior, in his Report of the same year, says :—

"A necessity was felt by all for having an exact map which, comprising the geological and mineralogical description of Chile, particularly marked all the notable points of the country which have not been well studied up to now, such as the various altitudes above the level of the sea, and the *culminating line of the Cordillera between the slopes that descend to the Argentine provinces and those that water the Chilean territory.*"

The instructions given to Señor Pissis directed him to—

"Devote particular attention to the *Cordillera de los Andes*, which he shall examine in the most thorough manner possible, in order to establish with precision the *edge or culminating line which separates the slopes that descend to the Argentine provinces from those that water the Chilean territory.*"

The outcome of Pissis' labour was the map of Chile on a scale of 1 : 250,000 and the *Geografia Física de la República de Chile*, a most perfect work for the time in which it was written, and which was most certainly taken into considera-

tion above all others, in deciding the geographic boundary on the south, viz. *in the anticlinal line of the Cordillera de los Andes*, which is the frontier the eminent geographer holds to be the true one.

Pissis' work proves that the boundary as understood by himself and by the Argentine Republic is the one which harmonises with the terms of the Treaty of 1881, and therefore, in order to prove this, it is indispensable to quote some extracts from this interesting work :—

“Chile,” says Pissis, “which is situated on the western side of South America, extends from lat. 24° to 56° S. ; she is bounded by the Great Ocean on the west, but the eastern boundaries are not yet definitively settled. From lat. 24° to 34° S. *the anticlinal line of the Andean Cordillera forms her boundary*; beyond this, extends the vast, as yet undivided, region of Patagonia and Western Chile, i.e. the part situated on the west of the Andean Cordillera.”*

“When the traveller, standing on a lofty summit, casts his eyes over a mountainous district, he is first of all struck by the disorder which seems to characterise the distribution of those enormous masses joined one to another by curiously contorted lines; but the first impression insensibly disappears, and he begins to distinguish in this apparent disorder, certain lines which recur at various distances and all of which seem to have the same direction; some follow the direction of the lines of the slopes, others cross these lines, forming with them more or less open angles; and the kind of network made by these numerous intersections forms the outline of the Serranía. When this is very extensive, like the Cordilleras or other mountain chains, the principal line of slopes often changes its direction; but such change is not arbitrary, and the new direction always corresponds to one of the lines which form part of the outline. In this way, the Chilean Cordillera, which lies mainly in a north and south direction, presents, at intervals, along the line of slopes, lofty summits which have a north-easterly or sometimes a north-westerly direction, as occurs in the Talca Cordilleras or in those of the province of Coquimbo.”†

“All mountainous regions of the world have a similar structure. They are composed of various systems of parallel crests, *amongst which there is one system that predominates and forms the most prominent feature in the configuration of the country.*”

Pissis adds that Aconcagua is not situated in the main range but at some distance to the east: that the ridge which previously formed the southern boundary of the basin of the Maipo river has been cut, and that this boundary is now situated more to the south; the level of the plain having been raised with the alluvions deposited by the Cachapoal, and that the “Cordillera de la Costa,” a range independent of the Cordillera, is not a continuous line of mountains, being cut by rivers.‡ His definition of the longitudinal valley which separates both ranges is worth being quoted in full.

* *Geografía Física de Chile*, by A. Pissis, 1875, Intro. p. ix.

† *Ibid.*, p. 1.

‡ *Ibid.* p. 17.—“Mount Aconcagua is not situated on the line of slopes, but at some distance to the east,

P. 35.—“Immediately to the south of the river Choapa, he says, the Cordillera de la Costa unites with the Andean Cordilleras; the whole space included between *the line of slopes and the sea* presents nothing but a vast agglomeration of hills, the altitude of which gradually diminishes in proportion as they approach the sea. The whole of the depression corresponding to the longitudinal valley, is made apparent by certain gaps, like that of the ‘Cuesta of Tilama,’ which serve to divide two long ravines, on the west of which rises the Serrania named Cortadera, representing the prolongation of the Cordillera de la Costa.”

P. 36.—“Between the valleys of the Ligua and Aconcagua rises a group of hills *separated from the Andean Cordillera by the Jarilla gorge and Putaendo valley*. This group, which should be considered as a part of the Cordillera de la Costa, consists of two small chains running from north to south; the more eastern chain, known by the name of Altos de Putaendo, includes Mount Tajo, the Angeles Hill and Mount Potrero-Alto.”

P. 38.—“To the south of the river Maipo, the different ridges which form the Cordillera de la Costa run further and further from the foot of *the Andes*, leaving between them plains which form the longitudinal valley, the northern side of which adjoins the Batueo farm (*hacienda*). This valley, from where it begins, is cut through by several straits, as Paine and Barriales; but south of the latter it extends uninterruptedly up to Reloneavi Bay; and the *Cordillera de la Costa* forms a perfectly distinct range from that of the Andes. . . . A very narrow strait separates it from the last spurs of the Andes; the mountains which form it nevertheless attain a considerable height.”

P. 44.—“The existence of this long valley is one of the most remarkable features in the orography of Chile: it follows the base of the *Andean Cordillera*, and extends without a break from 33° to 42°. It is like an immense fissure, the traces of which are first noticed from the Atacama Desert, but it is only in the province of Santiago that

and joins it by a very lofty crest in which the rivers S. Jnan and Mendoza both take their rise. Here the line of slopes crosses a lofty plateau known by the name of Potrero-Alto, from which the chains which run along the Chilian side descend”

P. 20.—“The Maipo. Various spurs having a north-westerly direction descend from this ridge, the most remarkable being the one which commences at lat. 33° 55' and terminates in Mounts Pilque and Principal. Another branch, which starts from the same point, goes towards Paine's Strait, and then connects with Mounts Aguila and Acelu. It is this chain which must have previously formed the southern boundary of the basin of the Maipo, but this boundary is now situated more to the south; the matter brought down and deposited by the Cachapual had little by little raised the level of the plain, and the streams which descend from this ridge and which should empty into the Cachapual, have been forced to take a northerly direction and cut their way through the strait, from whence they flow into the Maipo.”

P. 30.—“The Cordillera de la Costa does not present a continuous line of mountains *like the Andes Cordillera*; at intervals it is cut either by valleys which drain into the sea, or by more or less extensive plains.”

P. 31.—“Between Taltal and Chañaral de las Animas there rises another group of hills which present the same appearance and the same medium elevation, but which have no prominent crest, such as the Parañal. It is from the latter that the line depends which forms the southern boundary of the Desert of Atacama, comprising the hills of Cachiuyue, which unite with the *Cordillera de los Andes*, by means of the mountains of Sandon. Throughout the whole extent there is a very striking difference of altitude between the western and the eastern slope of the Andes. On the side facing the sea, the hills are steep and difficult of ascent, whereas on the east, they offer gentle slopes which blend insensibly with the plain. The mean height of the latter near the Cordillera de la Costa, ranges from 600 to 1000 metres, and then gradually rises to the foot of the Cordillera de los Andes.”

it begins to take the form of a plain, the width of which increases more and more in proportion as it extends southwards. Near its origin this plain is cut at intervals by some spurs of the Cordillera; forming, in this way, the plains of Santiago and Rancagua, which communicate with each other through Paine's Strait. These plains have a very distinct east to west inclination; the altitude of Santiago, situated at the foot of the Andes, is 569 metres; whereas that of Pudahuel, which is situated near the eastern base of the Cordillera de la Costa, is only 357 metres. The same thing is observed in the plain of Rancagua, the altitude of the eastern part being 512 metres and that of the western part 346 metres."

P. 45.—"On the north of the Chacabuco chain, the longitudinal valley is still apparent in certain plains like the San Felipe and the Sobrante; these disappear in the whole of the space included between the Rivers Choapa and the Coquimbo; but north of the latter, the elevated plains of Arqueros appear, continuing to the Huasco and Chañarcillo along the part called La Travesia; finally the extensive plains of the Atacama Desert occupy the same position *between the Andean and the Coast Cordilleras*. Even in the parts in which it appears to be unbroken, this great depression—parallel with the axis of the Andes—manifests itself through narrow gorges and breaches, to which we referred when describing the Andean cordons, which unite with the Cordillera de la Costa, so that it may be considered as an unbroken prolongation from the *Bolivian table-land down to Reloncavi Bay*, occupying an area of 2200 square kilometres; but this is not its whole extent, as it is seen continuing south of 42° S., by the Chonos and Messier channels, and, in this way, to reach the Straits of Magellan—forming one of the longest valleys known in the structure of the earth."

In reference to the hydrography, Pissis says:—

P. 216.—"All the Chilian streams rise a short distance from the coast; they are limited by *the summit of the Andes*, and are, therefore, influenced by all the climatic conditions of the regions they traverse."

P. 218.—"In the whole portion extending to the south of this last parallel (42° S.) there can only exist rivers of slight importance on the *west of the Andes*, as the sea washes the base of *this Cordillera*, and must receive the streams which descend from it before they can unite and form rivers of any importance; *it is only on the east, in the unexplored regions of Patagonia, that great rivers can exist.*"

Referring to the river Maipo, he says:—

P. 233.—"The affluents on the left bank are, in the first place, the Rio de la Cruz de Piedra, the Rio Barroso and the Rio Blanco, all three rising in the northern slope of the Paloma Hill; the two latter owe their names to the clay they hold in suspension which proceeds from the loamy soil which they traverse. Some eight kilometres further up the Rio Blanco receives the Rio Claro, which has its source in the Compañía Mountains; then the Tollo stream, the Pilque, and lastly, the Rio de Paine, which unites with it close to the town of Valdivia. This last river, in a more remote period, *must have flowed into the Cachapoal*, as it rises outside the natural limits of the basin, and it is probable that earthquakes may have caused it to recede to the Angostura defile, where it has forced a passage. These

changes in the course of the rivers are rather frequent in Chile, as the immense quantity of material which they carry away with them during floods, raises the beds; this soon raises the level to that of the plain, and the river terminates by spreading over it. To these successive changes in the beds of the rivers, therefore, must be attributed the origin of those mounds of rounded pebbles which occupy the lower portions of the longitudinal valley.*

Referring to the Rapel basin, he adds :—

P. 235.—“The Cachapoal receives many affluents, those on the left bank being most numerous and important. It receives first, in this part, the Rio de las Leñas, which issues from Lake Yeso and originates in the *summit of the Andes* under lat. $34^{\circ} 24'$.”

With reference to the Maule and its affluent, Pissis says :—

P. 240.—“The basin of the Maule is the largest in Chile, extending from lat. $35^{\circ} 7'$ to $36^{\circ} 30'$, embracing an area of 20,000 square kilometres. It is enclosed on the north by the anticlinal line which forms the southern boundary of the Mataquito Basin as far as the Tabunco Mountains, it then passes along the crest of the Tabunco Mountains; and then continues along the crest of the mountains which continue towards the Libun, and thence to the sea, passing along the Quibolgo Mountains. *The summit of the Andes*, from el Descabezado to lat. $36^{\circ} 20'$ S., forms its eastern limit; on the south it is enclosed, firstly, by a branch which strikes off from the Longavi; it turns towards the south, then towards the west, where it forms the Semita Mountains, and then along an anticlinal line that passes through San Carlos and goes thence to Peñuelas and Quirihue; finally it is quite enclosed on the west by *the summit of the Maritime Cordillera*,† following the line which passes through Luga, Mount Name, and the Empedrado Mountains, whence it continues towards Constitucion. The Maule, which collects the waters of this basin, issues from a great lake bearing the same name, situated in the *summit of the Andes* at an altitude of 2194 metres; thence it continues towards the north-west, until it strikes the *massif* which sustains the Descabezado; it then takes a west-north-west direction and continues to the sea, where it discharges its waters in lat. $35^{\circ} 20'$ S.”

He adds also, in reference to the Biobio basin :—

P. 248.—“Finally, a little way before it discharges into the Biobio, the Laja receives the Rio Claro, which has its origin in the *eastern slope of the Maritime Cordillera* in the mountains which extend between la Florida and Tomeco.”

Writing with reference to the basin of the Valdivia, he says :—

P. 252.—“The Rio Valdivia, which discharges into Coral Bay, under lat. $39^{\circ} 53'$, receives the waters of a rather extensive basin extending from lat. $39^{\circ} 25'$ to $40^{\circ} 20'$, formed by an anticlinal line which follows, at the commencement, *the summit of the Maritime Cordillera*, from Punta Niebla to the height of Punta la Maiquilla. From

* Recently, in August 1899, the Tinguiririca river has changed its bed, causing great damage.

† Father Rosales makes references, two centuries before, to the *summit* of that chain, vol. 1, p. 275.

whence it proceeds towards the east, traversing the San José tablelands, passing along the ridge of the volcanoes Villarica and Quetropillan, from whence it follows *the ridge of the Cordillera de los Andes* until Cerro Mochó and Lajara Volcans;”

Speaking of the basin of the Reloncavi, he says :—

P. 261.—“Independently of these great rivers which all rise in the Cordillera de los Andes, Chile further possesses a certain number of water-courses, which sometimes originate in the *western slope of the Maritime Cordillera* and others in the last spurs of the Andes.”

Speaking of the rivers which have their source in the western slope of the Cordillera de la Costa, he says :—

P. 263.—“Between the Maule and the Itata a great number of small rivers are found, which, except the Loanco and the Reloca, all rise in the *western slope of the Maritime Cordillera*.” *

P. 264.—“Then follow in order the Punchemo stream, the Rio de Chanco, the Rahue, the Pejuco, the Curanipe, the Gomez stream, the Huechupureo, the rivers Corquecura and Comullao, small water-courses which all rise in the *western slopes of the Maritime Cordillera*.”

P. 264.—“Near the city of Arauco, the Caranpangue discharges; this is a rather considerable river, formed by the junction of two other water-courses, one of which originates in the mountains situated on the west of Santa Juana, first flowing southwards, then westward, where it cuts the *Maritime Cordillera* through a deep gorge which passes along the base of the *Tres Cruces* mountain and joins with the other arm some six kilometres above the city of Arauco.”

The Tribunal will excuse the long quotations made from the work of Pissis, but as it is an official Chilean survey, it is not difficult to draw the following conclusions from these quotations. Pissis employs the word “vertiente” synonymously with “versant” or “slope,” and shows that there are some rivers, such as the river Maipo, which take their rise outside the natural boundaries of their own basins. This must be borne in mind, as something similar occurs with the rivers cut by the line proposed by the Argentine Expert, since it may be said that such parts which are to be found on the eastern slope of the Cordillera are outside the natural limits of their own basins, the normal basins lying in the western slope, which is the only one belonging to Chile. Pissis shows that the Cordillera de la Costa does not form a part of the Cordillera de los Andes; and the same must be said of the corresponding ridge of hills to the east, which the Argentine Expert pronounced to be the territory of his country. Pissis shows

* “En el vertiente occidental.” Señor Pissis’ work illustrates, in many pages, the true meaning of the word “vertiente” (slope) used in the Treaty of 1881.

also that the city of Santiago is situated at the foot of the *Cordillera de los Andes*, in the central plain to the west of the mountains, that the *Cordillera de la Costa*, although intersected by rivers having their source in the *Cordillera de los Andes*, has its own line of watershed, and that the “cima” or summit is *synonymous with the line of high crests of the mountain chain*. If it is the case in the *Cordillera de la Costa*, it may be the same for the *Cordillera de los Andes*.

The attention of the Tribunal is called to all the above points, as they bear strongly upon the questions which have been submitted for decision.

It will now be seen what the renowned savant Domeyko understood as the “*Cordillera de los Andes*.” He describes it in the following manner :— *

“The Andes, which, in all the northern chain, from Atacama to Aconcagua, rise more than 5000 yards above the level of the sea, and generally preserve the same character in every part, presenting but little variety in their forms, and having but few isolated peaks, assume in approaching lat. 33° S., a slightly different aspect and a greater elevation; at the same time a certain complication is noticeable in their configuration, and new rocks and new formations appear on their surface. It is in this latitude that we first find volcanic masses of a recent period, and exceedingly lofty cones, whose snow-capped summits protect recently extinct craters. . . .

“The remaining portion of this high range appears to end in front of San Fernando in the summit of the *Tinguiririca*, one of the highest volcanoes in Chile, now dormant, and covered with ice, like its neighbours. From this point, *the Andean chain becomes visibly less* in elevation; it becomes narrower at the same time, and its undulations are more gradual.† The traveller coming from the north, who endeavours to embrace in one comprehensive view the two chains of the *Cordilleras* and the beautiful plain which separates them, at once notices this difference, *which becomes more apparent the more one advances towards the south*.

“Let us confine ourselves to the *Andean chain*, walking in the centre of the Talca Plains, on a summer’s day, with the sun approaching its zenith. . . .

“*It is over the summit of Descabezado as well as those of the Planchon, the Cerro Azul, and the Cerro Nevado de Chillán, that the line of the loftiest region of the Andes passes, but not the line of the water-divide, which lies on the other side of it, some three or four leagues more to the east*. Between these two lines, facing the *Descabezado*, is a mountain called the *Cerro del Medio*—snow-covered, volcanic, and from whose craters, now empty, and ice-covered slopes, issues a considerable stream, subsequently increasing to a river and flowing

* Excursion á la Cordillera de Talca y de Chillán, by Dr. Ignacio Domeyko. Faculty of Medicine and Physical Science and Mathematics. Sessions held in June, July and September, 1849.

† Referring to the same latitude where Domeyko says that the Andean Chain becomes narrower, the statement read by the Representative of Chile before the Tribunal speaks of the Nevado Hill, and locates it 175 kilometres to the east of the boundary line proposed by the Argentine Expert in the same chain which Domeyko describes. Therefore, it is useless to say that the Nevado Hill (as many others quoted by the Chilean Representative) is not in the *Cordillera de los Andes*.

north-east, passing through a valley called the Valle Grande, descending almost parallel to the sources of the Mondaca lagoon, and connecting with the river which leaves this lagoon, the two together form the Rio Lontue, one of the largest in the south. Behind the Cerro del Medio stream, on the east, lie the hills of the chain which divides the waters, and through a small gap in the hills, called the Puerto del Yeso, *lies the road to the Argentine Provinces, and the grazing grounds to which the Talca farmers send their cattle in summer.*

“On March 25, at nine in the morning, I stood on the summit of the highest ridge of the Andes, or the boundary line, called at this place, Portezuelo de Mata Caballos. . . .

“The remainder of the line of the whole summit of the Cordilleras was free from snow, although its elevation was almost as great as that of Mont Blanc in the Alps, and exceeded that of the Peak of Teneriffe by more than 1000 varas.” *

Analysing the work entitled The U.S. Naval Astronomical Expedition to the Southern Hemisphere, by J. M. Gilliss, Domeyko says † :—

P. 637.—“Less exact and certainly erroneous is the assertion of the author that the great Andean chain occupies two-thirds of the Republic. It is sufficient to consult the valuable map by Señor Pissis accompanying the first volume of his work, to see *that the Andes properly so-called do not occupy half the breadth of the territory in the province of Santiago, and further south beyond the Teno, the intermediate plain becomes so wide that the Andean chain does not form a third part of the territory.*”

On p. 642 he writes, “Señor Pissis indicates, however, in the province of Colchagua, masses similar to those of the central chain of the province of Santiago; and the introduction of these by Señor Pissis is a very happy idea, as we shall presently have occasion to show, it being our purpose to exhibit the relation between the physical geography of Chile and its geology. But further south from the latitude at which, beyond the Teno, *the intermediate plain widens and completely separates the Andes from the Cordilleras de la Costa, those masses which constitute the central chain of the province of Santiago disappear*, however much Mr. Gilliss might wish to prolong this chain to Chiloé, at the expense of the true Cordillera de la Costa.

“But this mistake has led the chief of the expedition into another error, due to what he has read of the travels of Von Tschudi in Bolivia and Perú, that in that part of South America *there exist two chains of Cordilleras*, one eastern, the other western; a statement which might have been found in all important exploration or geographical work, with the particularity that, generally, *these two chains of Cordilleras are considered as two chains of the Andes, and without which it would not have occurred to any one to confound them with the*

* Excursion á las Cordilleras de Copiapó, with a short treatise on the Fundamental Principles of the Geology of Chile, by Don Ignacio Domeyko, 1843, Santiago, pp. 23 and 24.

† Domeyko, Estudios Geográficos sobre Chile. Critique on the North American work of Mr. Gilliss in the Revista de Ciencias y Letras, vol. 1, No. 1, Santiago de Chile, 1857.

mountain range of the coast or *Cordillera de la Costa*, which form a separate system different from these from every point of view."

In a Study of the surface of Chilian territory in relation to the geological character of the country,* Domeyko says :—

P. 48.—"Included between the Pacific and the *Andean watershed*, this country forms the western slope of the immense system of the *Cordilleras* which comprise two main chains of *Serranias*; one more westerly, called the Maritime *Cordillera* (*Cordillera litoral*—*Cordillera de la Costa*) and the other the *Andes*, properly so-called. The latter is the one which descends from the great Bolivian mass, where the two chains of the *Andes* of Upper Perú unite and from whence other branches strike off to the south-east."

P. 49 :—"In the third place, behind these *Serranias* the most compact chain of the *Andes* rises, the altitude of which is always double or treble that of the Maritime *Cordillera*; mountains with precipitous slopes, dominated by domes or cone-like blocks covered with perpetual snow.

"If we could now cast a rapid glance at these two *Cordilleras* from north to south, as far as the *Magellans* (lat. 54°) we should perceive that they both have their greatest elevation in their northern part, and that they vary very little in their relative altitudes between lat. $24^{\circ} 23'$ and 33° . In this last latitude, and particularly between 32° and 34° , the *Andes* acquires its maximum elevation, dominated by *Aconcagua*, *Tupungato* and *San José*, in which the most elevated group of mountains in South America is found. From about lat. 34° , the two *Cordilleras* mainly preserve equal—relatively moderate—altitudes, gradually decreasing until, on reaching the latitude of *Chiloé*, they only retain a third of their previous altitudes. There they separate from each other; what we call the "Maritime" *Cordillera* changes into a series of islands, and the "*Andes*" passes on to form the western boundary of the continent."

P. 68 :—"With respect to the rivers, it is natural that, owing to the double descent of the intermediate valley between the two chains of the *Cordilleras*, through the obstacles which the western places in the way of these rivers, and in consequence of the earthy sedimentary constitution of the plain, the innumerable rivers, creeks, and streams which descend from their sources to the base of the *Andes* are nothing but torrents, which, falling to the plains in the valley, are continued in its course; the larger number of these rivers traverse the plain through deep gorges, in a diagonal direction (south-west), their beds continually expand, and tearing down the cliffs at their sides, leave large stretches of their channels covered with huge pebbles and stones. From this configuration of the longitudinal valley, and owing to its greater slope towards the western *Cordillera*, it also happens that these rivers unite their main branches in this valley, and concentrate the volume of their waters in one or two main streams before traversing the *Cordillera* and reaching the Pacific."

P. 77 :—"Cordillera de los *Andes*. This *Cordillera*, between lat. 33° and 34° S., still preserves its magnificent profile, its lofty summits, its passes in the anterior zone, and only between parallels 34° and 35° , from which latitude it ceases sending out branches from

* *Estudios geográficos sobre Chile*, Reports, Santiago, 1875.

its branches to the Maritime Cordillera, and the intermediary valley assumes its normal width, the general change in the altitude of the Andes in their whole extent takes place. *From there the Cordillera contracts into a single narrower chain*, and continues to descend gradually as it advances towards the south, without greatly changing its aspect and configuration, down to Reloncavi Bay."

P. 80 :—"In the expedition of 1871, conducted by the Commander of the *Chacabuco*, Señor Enrique Simpson, *the Cordillera de los Andes was completely traversed via the river and transverse valley of the Aysen, in lat. 42° 25' S. and, further south, another easy pass was found through the valley of Huemules, lat. 45° 6' S.*

A pause must be made to call the special attention of the Tribunal to the fact just established by Domeyko. He describes the "*Cordillera de los Andes*" in unerring terms, and then shows that it is crossed first by the Aysen at lat. 42° 25' S., and further south by the Huemules at lat. 45° 6' S.

The Cordillera, thus traversed by the two rivers, is, according to Domeyko, the boundary line accepted by every one at that time, and those facts were perfectly known to the framers of the Treaty of 1881, including Señor Barros Arana as geographer. But as Expert in 1890, the latter pretended to leave to the west the said Cordillera de los Andes, and to look for a boundary line in the plains of Patagonia.

Like Pissis, Domeyko observes that the line which divides the waters of the summit (Cumbre) of the Cordillera is not found always on the lofty peaks, but he places it in the principal chain of the Cordillera, as is seen when he refers to the slope facing the Pampa. The intersection of two slopes forms the crest of the chain; as regards the peaks which are detached on the east and west they are features very remarkable in themselves, but independent of the continuous crest of the Cordillera. He separates clearly the *Cordillera de los Andes* from that of the coast, and takes note of the discovery made by Captain Simpson in his exploration of the river Aysen, that this river completely crosses the *Cordillera de los Andes*, a fact which did not surprise him, since he could not ignore that similar phenomena are found in other mountain chains, as well as in the Cordillera de la Costa, so familiar to him.

A book with a large circulation in Chile was the *Diccionario Geográfico de la República de Chile*, by Francisco Solano Asta-Buruaga (New York, 1867), and in it are indicated as the boundaries between Chile and the Argentine Republic, the "slopes of the Andes," while the Cordillera de la Costa is considered separate from that of the Andes, which is described as a veritable

wall that can be crossed only by some passes and openings. The list of its principal heights there given, defines perfectly its character as the principal chain.*

* Diccionario Geográfico de la República de Chile, by Francisco Solano Asta-Buruaga. New York, 1867.

P. 14.—“Andes (Cordillera de los). The vast backbone of Meridional America; The section of this great mountain chain running from north to south through Chilean territory, commences in lat. 24° S. and terminates in Santa Agueda Cape in the Magellan, and, it may be said, in the islands of Cape Horn. As a whole, it is the most uniform and most salient, and contains the loftiest mountains of the whole Andean system. (See: Aconcagua, Descabezado, Juncal, S. José de Maipo, Tupungato, etc.) Its structure and configuration have not yet been properly determined, and it can only be stated that, generally, it consists of a chain of sierras stretched along the line of meridian, with a south-westerly inclination composed of stratified and metamorphic rocks upheaved by eruptive ones, through volcanic action, which, at one time, must have been extremely violent. From its main knots, there branch off from the west, ramifications which, north of Chacabuco, mingle with the intermediate sierras or secondary chains of the coast, and south of the same, it rarely approaches them (see article on Chile); its main width is not less than a degree of equatorial longitude, prominent in the centre, and between the slopes of which it leaves lengthy valleys and dales, where the numerous cascades and streams, proceeding from its glaciers and snow-caps, unite and give rise to the principal rivers of Chile. The elevation of this Cordillera projects grandly on its western side, presenting a lofty and beautiful relief, crowned by gigantic peaks, and clothed at all seasons with thick snow. Its most notable mountains or summits are the following, mostly active volcanoes, perhaps, in remote times, but to-day only the Antuco, Chillán, Osorno and Villa Rica are of this nature, the following showing signs of activity, particularly at their base, viz. the Descabezado, Llullaillaco, Maipo, Planchon, S. José de Maipo, Tinguiririca and Yaima.

Names of Mountains or Hills.	Latitude.	Longitude.	Altitude.	Names of Mountains or Hills.	Latitude.	Longitude.	Altitude.
	° ' "	° ' "	metres		° ' "	° ' "	metres
Llullaillaco	24 15	1 54 E.	5600	Descabezado	35 25	0 15 W.	4500
Come-Caballos or				Longavi	35 50	0 20	3100
Barrancas Blancas . .	27 30	1 12	4450	Chillán (Nevado de)	36 30	0 22	3200
Doña Ana	30 00	0 46	4526	Antuco	37 07	0 30	2800
Cuzco	32 18	0 15	3922	Imperial ó Yaima . .	38 50	1 25	3000
Aconcagua	32 40	0 36	6834	Villa Rica	39 14	1 22	4875
Juncal	33 04	0 33	5995	Riñihue ó La ara . .	39 54	1 24	3800
Plomo	33 19	0 31	5433	Puyehue	40 49	1 48	2200
Tupungato	33 23	0 55	6710	Osorno	41 09	1 58	2302
San José de Maipo . .	33 45	0 44	5532	Tronador	41 15	1 40	3000
San Pedro Nolasco . .	33 55	0 17	3339	Calbuco	41 22	2 00	2250
Maipo	34 11	0 49	5384	Minchinmavida . .	42 48	1 56	2440
Alto de Mineros . .	34 41	0 26	4935	Corcovado	43 12	2 10	2290
Tinguiririca	34 50	0 15	4478	Yanteles	43 29	2 12	2050
Damas	35 00	0 11	3099	Sarmiento	54 27	0 10	2074
Peteroa ó Planchon . .	35 12	0 05	3819				

This majestic Cordillera, except where it is fissured in the Straits of Magellan and among the channels of Tierra del Fuego, is so compact in its concatenation that throughout the long extension of Chile it offers no other passage by means of which it can be crossed except the undulations in its ridge, the highest elevation or crest of which, always a considerable one, marks the watershed, to reach which it is necessary to penetrate through the openings and gorges of the streams flowing down from them into the valleys; and it is for this reason the latter are called “passes” or “defiles.” The most notable, commencing on the north, are the Come-Caballos, S. Guillermo or Naturales, Doña Ana, Rapel, Calderon, Piquenes, Patos, Uspallata, Piquenes de San José, Maipo, Yeso, Tinguiririca, Damas, Planchon, Descabezado, Alico, Antuco, Angol, Villa Rica, Riñihue, Tronador, etc. Only a few of these passes, the dry ones, can be crossed.”

P. 26.—“Atacama (Desert of). An arid and desolate region—the Sahara of America—lying between the

5. OPINION OF OTHER WRITERS.

Señor Francisco Javier Rosales, a notable man of Chile, in his *Apuntes sobre Chile* *—dedicated to his fellow-citizens—says :—

“The Government will doubtless have attentively examined all the rights which might entitle them to declare the greater part of the territory of the Strait to be national property. I am not acquainted with those reasons; and all I have before me is, first, that the Constitution of the State, in defining the territory of the Republic, says in Chapter I. ‘that it extends from Atacama to Cape Horn, and *from the Cordillera de los Andes to the Pacific Ocean.*’ This declaration indicates in a practical way that the boundaries *must be considered as being along the summits or crests of the range, no matter whether it be of greater or lesser altitude so long as it be the same chain of mountains which runs from north to south along the American continent.*”

Señor B. Vicuña Mackenna, one of the most illustrious Chilean writers, in his pamphlet *Le Chili* (Paris, 1855), has given his opinion on the limits of Chile in these clear terms :—

“You are always near your native land, you are not obliged to bury yourself some hundreds of miles in the interior as in other countries. The Andes surround you on all sides, the Andes therefore will make you remain there. In no other country, the boundaries of which have been traced by politics or history, has it ever been done in

Pacific and the Andes under the tropic of Capricorn, occupying a vast extension on the northern limits of Chile and the southern limits of Bolivia. Corresponding to the first, is the part included on the south of lat. 24° (see article on Chile), the length of which is not less than 300 kilometres from north to south, with a main width of at least 100°. It presents a surface covered by Serranias, bare of vegetation, which expand into tablelands and rise in isolated ridges, forming a succession of ridges and plains, cut by frequent and deep ravines.

“Towards the base of the Andes it contains extensive and almost dry salinas, or salt lakes, around which some vegetation is found, and hardy plants, such as the rush, grow; notable among them is the one called Punta Negra, situated on the west of the Llullaillaco volcano, and is 2400 metres above the level of the sea; it is not less than fifty kilometres in length and thirty in width, and in its vicinity, to the north, Señor Philippi found a large quantity of meteoric iron.”

P. 78.—“Copiapó (Department of), belonging to the Province of Atacama, its capital being also the capital of the province. On the north, it is the northern extremity of Chile; it is bounded on the south by the department of Vallenar, by the Sierra which, from Mount Manflas, runs westward, dividing the declivities of the rivers Guasco and Copiapó, up to the point called Boqueron; on the west, by the department of Caldera; on the east, by the Andes, where Mounts Llullaillaco, Manflas and others are found, in which the following passes open out: Paipote, Come-Caballos or Pulido, Pueblo del Inca, and some less explored ones, which open a passage to the Argentine Republic.”

* Paris, 1849, printed by Bernard and Co. (The Mercantile Gazette of Buenos Aires, 1850).

such a beautiful, so perfect and so magnificent a way as in Chile, and this, not by politics, but by Nature, by the hand of God. *Two deserts, the ocean and the largest mountains of the universe, these are its boundaries. . . .*

“While the potato, that, without doubt, is indigenous to Chile, grows wild on the summit of the mountains of Nahuelbuta, at Concepcion, it produces itself in perfect beauty in the valley of Aconcagua, so that one can only say that in the Chilean Andes, or more properly in the western slopes of the Andes which we call Chile, grow all temperate plants, all cereals, all vegetables, and all trees for fruit and ornament. . . .

“The general topography of the country presents one characteristic, viz. the *western slope of the Andes*, which commences in the regions of the eternal snows and descends gradually to the shores of the sea.”

In a lecture given also by Señor Vicuña Mackenna at the Travellers' Club in New York,* on the Present Condition and Prospects of Chile, on the 23rd December, 1865, he said :—

“In the first place, Chile has its boundaries laid out as if by the hand of God, for forming a single nation. . . . *Chile has no neighbours, properly speaking.* Its limits are almost impassable to all nations. *On the east the lofty Andes*, covered with eternal snow; at the north the Desert of Atacama, a wilderness of 600 miles, where neither man nor animal, nor even the hardiest of plants can live; *on the south the boundless plains of savage and unknown Patagonia*; on the west, its only vulnerable side, the mighty Pacific Ocean.”

Señor Vicente Perez Rosales† (a Chilean) in his *Essai sur le Chili*, says :—

“Western Chile, the consideration of which is the sole object of this essay, is contained between the parallel of Mejillones on the frontier of Bolivia, Cape Horn, *the culminating line of the Andes*, and the Pacific Ocean. To this section belong the islands of Juan Fernandez, Masafuera, Santa Maria, Mocha, and the Archipelago of Ancud, Guaitecas, Chonos, and Tierra del Fuego.

“At Cape Froward the continent of Western Chile commences, and it terminates at Mejillones on the frontier of Bolivia.

“In traversing the coast from north to south one comes upon an arid desert enclosed between the vast chain of the Andes and the sandy dunes that border the Pacific. This is the Desert of Atacama; it embraces the whole extent of the country as far as the base of these colossal mountains, *and it ought to be considered as one of the greatest benefits*

* Señor Vicuña Mackenna was, at that time, the Special Chilean Envoy to the United States Government; his lecture, therefore, is all the more important.

† Hamburg, 1857. At the time when Señor Perez Rosales wrote, Chile was claiming Patagonia, which was then called by Chile “Eastern or Transandine Chile.”

that nature has accorded to Chile, by establishing an impassable barrier between that country and the adjacent ones.

"The dreary aspect of the coasts as far as the latitude of Coquimbo, would be even more dismal than that of Patagonia, without the presence of the Cordilleras, the heights of which, covered with glistening snow, stand out against the azure of the pure atmosphere. . . .

"Western Chile may be considered as the downward slope of the Andes which descends gradually to the Pacific Ocean. The first parallel would represent this powerful chain, the second, the mountains known under the name of *Cordillera del Medio*, and the third, the mountains of the coast, that are also called '*Cordilleras de la Costa*.'"

Señor José Victorino Lastarria (the ex-Minister Plenipotentiary of Chile to the Argentine Republic) in his *Lecciones de Geografía Moderna*, a work highly appreciated in Chile, and approved by the University of Santiago as an educational text-book, says :—

"The Republic of Chile, situated on the south-western portion of South America, extends from the Atacama Desert to Cape Horn. *The great chain of the Andes separates it on the east from the Argentine Confederation*, and it is washed by the Pacific Ocean on the west."

Señor Miguel Luis Amunátegui in his book, *La Dictadura de O'Higgins*, writes as follows :—

"The Andes, that *colossal bulwark* with which God has protected our country on the east."

And, in the *Biografía de Don Manuel Salas*, he added—

"The fertile land of Chile, which lies beneath the most beautiful sky in the world, protected on the east by a *gigantic Cordillera*, and washed on the west by a calm and stormless sea."

And, in his *Reconquista Española*, the following passage occurs :—

"How did General San Martín traverse the *Andes*, that *stupendous natural barrier* which God has fixed between the two countries? . . . That *colossal barrier* which separates Chile from the Argentine Provinces, on which reigns a perpetual winter, has all the dangers of the ocean without possessing any of its advantages."

Don Manuel Antonio Matta, one of the most distinguished public men of Chile, in treating of the difficult question of limits, in an interesting book,* says :—

"On the southern frontiers, one does not see, although it may be indicated, the continuous backbone of the Andes, which there becomes lower, and interrupted, and

* Manuel Antonio Matta, *La Cuestión Chileno-Argentina*, Santiago de Chile, 1874, p. 60.

until a short time ago was thought to be more broken up than it really is. Recent explorations have in great measure confirmed that belief, as may be seen by the diary of his journey by Commander Enrique Simpson, which proved that the river Aysen, at lat. $45^{\circ} 25' S.$, crosses the Andes ;”

and taking these facts into account, proposed to the two countries to settle the question of boundaries in this manner :—

P. 96.—“The Argentine Republic, a continental country, and which faces the Atlantic, and possesses there her interests and her future ; for this reason, and by reason of the well grounded claims which she has proved over that portion of territory, as well as for reasons of continuity, contiguity, and facilities, might, and it is even perhaps true to say, *ought to receive all that is found to the east of the real or ideal line of the summit of the Andes*, as far as parallel lat. $50^{\circ} S.$, recouping herself with the whole of *the interior of Patagonia* for the part of that territory and for Tierra del Fuego which were left to Chile, a maritime country which finds both convenience and her own interests in the colonisation of those islands, a colonisation which she has tried, and in part accomplished.”

And as a last quotation, it will now be well to recall the words of Señor Gaspar Toro,* the Secretary of Legation of Señor Barros Arana himself, when he was Minister of Chile in the Argentine Republic, whilst he was negotiating the Treaties of 1876 and 1878 :—

“The great Cordillera de los Andes, which runs through all America, comes down uninterrupted as far as Llanquihue, on the southern boundary of Patagonia. In its prolongation towards the south, it is intersected and disappears in some places, and, in others, it opens out, and splits up into branches, which stretch out their spurs far into the interior of Patagonia, or else hide their bases in the Pacific, their crests forming the islands of the coast. There any anticlinal line or *divortia aquarum* seems to be effaced : the waters flow in every direction, through large valleys, considerable lakes, high and vast table-lands, until they empty themselves, some in the Pacific and others in the Atlantic. Where does the great Cordillera definitely end? According to some, at Cape Froward, which advances into the Strait, a little to the south-west of Punta Arenas ; according to others at Cape Providencia, fifty leagues to the west of it, or somewhat to the north of this cape ; and according to others, the mountains of Tierra del Fuego form part of the same Andean system, of which the definite end would be the chain bearing Mounts Sarmiento and Darwin, near Cape Horn.”

Not a single one of the Chilean writers or geographers, as it has been seen, has ever disagreed in the knowledge of the “*Cordillera de los Andes*” as the boundary line between Chile and the Argentine Republic. All and every one

* La Diplomacia Chileno-Argentina en la Cuestion de Límites, por Gaspar Toro, Santiago de Chile, 1879, p. 10.

of them have always understood by "Cordillera" or "Cordillera de los Andes," the lofty crest, the impassable barrier, the wall made by God to divide the two countries.

Not only in the quotations made has the definition of the Cordillera been clearly expressed, but they also show that the "Cordillera de los Andes" was at all times looked upon as the safeguard of Chile on the eastern side. The Treaty of 1881 has laid down the line so well defined by Señor Matta, but now the Chilian Expert proposes to leave to the west both slopes of the Cordillera, and to place a frontier in the plains of Patagonia. It is not possible to accept such a proposition, contrary to tradition, to the occupation of the land, and opposed to future tranquillity.

The Chilian Representative, however, has entered into some considerations to support the claims of Señor Barros Arana, quoting a few authors of more or less importance whose phrases, he thinks, harmonise with those claims.

Though this is not the case, and though the complete transcriptions already put before the Tribunal would suffice to prove that no one has ever doubted that the boundary line is the summits of the Cordillera, as it has been also stated by Señor Alejandro Bertrand,* nevertheless, being convenient to unhinge all the assertions in the statement read by the Representative of Chile, a brief account of the matter is presented here.

The extracts therein contained from geographers and statesmen refer to watershed, and starting from this single fact, it is taken for granted that those geographers and statesmen speak of the continental divide, and that they think it is possible to swerve the Cordillera de los Andes in the marking out of the international frontier.

Observation, however, proves it to be otherwise.

The case presented by this boundary dispute would be an anomalous, unique and exceptional one, inasmuch as, on one side, a number of passages, which clearly and luminously point out that the boundary must be sought in the edge or upper ridge of the main chain of the Andes, are cited, while on the other hand, allusion is made to authorities mentioning the *divortium aquarum*. It would be an anomalous and unique case, not precisely on account of the dissimilitude of the opinions—which is of frequent occurrence in relation to any question whatsoever—but because the supporters of the one and the other

* Estudio tecnico, p. 18.

theory did not themselves take into account that they were advancing different doctrines. Furthermore, it is not unusual to find in the writings of authors cited by the Chilian Representative explicit references to the crest of the Cordillera, though on other occasions they may have referred to the *divortium aquarum* of the Cordillera. Unless it be shown that there exists obvious and gross contradiction in their opinions, one must conclude that, when the *divortium aquarum* is defined, they intend to indicate that part of the main chain where its watershed occurs. In fact, when a few statesmen and geographers have spoken about the watershed of the Cordillera, they have meant, as could not be otherwise, the watershed in the main and central chain, and not any of the many other watersheds that may exist, and do exist, in any region either level or mountainous.

It seems superfluous to enlarge on definitions of simple points, and to repeat that there are many varieties of watersheds, from a continental water-parting to that of the streams flowing to the tributaries of the same river; it is not, however, superfluous to recall that the very Experts of the Chilian Republic maintained the truth of this assertion prior to, and after the signing of, the Treaty of 1881.*

* The Chilian Expert, Señor Barros Arana, has stated that, "Each one (speaking of the rivers) has its water system, bed or basin, that is to say, the whole country whose waters form it; that of an important river which reaches to the sea, is called principal; that of a medium river, secondary; and that of other much smaller rivers, tertiary; the boundaries dividing these areas, or fluvial regions, bear the name of watershed lines."* Consequently, in each region the watershed presents particular aspects and conditions, according as it is a principal, secondary or tertiary division.

Señor Bertrand, in describing, in 1884, the Atacama Cordilleras, expressed himself as follows: "North of the 28th degree a new hydrographical conformation is presented, consisting in independent basins or beds whose waters do not visibly feed any rivers whatever, and which are, moreover, separated from their neighbours by rising ground. This conformation is the predominant one in the high plains of Atacama, of Salta and Jujuy, of Lipéz, Chichas and Oruro; it is evidenced by a bifurcation of the Andean *divortia aquarum* into two branches; that to the west marks the boundary of the streams flowing towards the Pacific sea-board, the eastern indicates those which, directly or indirectly, proceed to the Atlantic. These two branches of the *divortia aquarum* are very winding; have very acute internal angles, such as those forming the source of the Río San Francisco or Fiambalá, and the Río de San Juan Mayo, and do not unite except at the 14½ degree of latitude, at which point the *divortium aquarum* recovers its unity and preserves it to the northern extremity of the Andes. Between the two principal branches into which the water-parting bifurcates, are many others forming the divide between the various basins or beds of which we have spoken. Some of these are very extensive, as those of Lakes Titicaca and Poopó, and others, such as the chief number of those forming the southern part of the high plateau with which we are occupied, extremely restricted."†

The Chilian Representative, in speaking before this Tribunal, abounded in extracts and passages which more and more confirmed the idea that watersheds vary in the same way as the nature of the phenomena which produce them. "If it were claimed," he said, "that this phrase means only the summits dividing a

* Elementos de Geografía Física, by Diego Barros Arana, 3rd edition, Santiago, 1881, p. 124.

† Memoria sobre las Cordilleras del Desierto de Atacama, by Alejandro Bertrand, Santiago, 1885, p. 200.

If, therefore, and as the Chilean Representative states, there are so many watersheds, one must not, nor can one, conclude therefrom that the fact alone of speaking of watersheds implies reference to the South American water-divide, but, on the contrary, just as the South American Continent and the Cordillera are different things, so also the Continental *divortia aquarum* and the *divortia aquarum* of the Cordillera de los Andes are different, although in many parts they concur.

The statesmen and geographers who, although they refer to the Chilean boundary as being the crest of the Andes, speak at the same time of the *divortia aquarum*, could not have referred to any other divide than that which takes place in that crest.

If one examines carefully, and with an unprejudiced mind, the facts cited by the Chilean Representative, one will find that, notwithstanding the form in which they have been presented, none of them support the Chilean doctrine.

1. Speaking of the Congress of Lima, he stated that it was there laid down—

“That the delimitation of frontiers between those different States (Perú, Bolivia, Chile, Ecuador and Colombia) should be carried out by searching for natural lines, such as the water-parting summits, or the *thalweg* of the rivers.”

But “the water-parting summits”—assuming the translation to be correct—is not the Continental divide. The Congress took notice of the summits, but not of the isolated peaks which disperse the waters on all sides; took notice of the uninterrupted crests at the intersection of the two inclined planes of a chain, an intersection which naturally divides the waters of the same; they did not refer to the watershed of the Atlantic and Pacific basins.

2. The Instructions given on October 10, 1848, by the Government of Chile to Señor A. Pissis, “to make the survey for a topographic map of the country,” are said to be in harmony with the doctrine of the continental divide, the consequence of which is that the ridge of the Cordillera de los Andes, and even the Cordillera itself, is departed from. This is not the case, however.

“Señor Pissis,” the instructions read, “shall devote particular attention to the Cordillera de los Andes, which he shall examine in the most thorough manner possible in

certain part of the waters, it would be useless, as it would leave the problem of delimitation as vague as before; for, although there is only one general water-divide, not crossed by any water-course, *there are an indefinite number of secondary divides*, amongst which the selection would have to be made, if such an interpretation were accepted.”

order to establish with precision the *edge or culminating line* which separates the slopes that descend to the Argentine Provinces from those that water the Chilian territory."

Thus, it is to the Cordillera de los Andes, and not to the South American continent, and within the Cordillera, to its edge or culminating line, that Señor Pissis was to devote his attention. In this edge, in this culminating line, the intersection of the two opposite slopes must be sought. If the Instructions of the 10th October, 1848, supports the claim of either of the two countries, it is certainly not that of the country which departing from the Andes and its crest occupies itself, independent of the mountain barrier, with water-divides only. The message in which President Bulnes informed the Chilian Congress upon the commission entrusted to Señor Pissis has also been invoked as an argument in support of the Chilian contention, but this can easily be disproved. It reads as follows :—

"It was an imperative necessity to have an exact map, which, while exhibiting the geological and mineralogical features of Chile, marked out all the most notable points of the country, their altitudes above the level of the sea, and the *culminating line of the Cordillera* between the slopes that descend to the Argentine Provinces and those that water the Chilian territory."

The culminating line of the Cordillera is not the line where the continental divide is sometimes produced in the Argentine plains. Señor Pissis carried out his mission as has been stated, with the natural errors of detail which, in view of the magnitude of the work, were to be expected, confining himself, however, to the tenor of the orders received. He gives us in his survey of the Cordillera de los Andes the precise features of the great range; his map shows us the crest of its main chain as he knew and understood it, without taking into account the borders of the water-basins when they present on the edge of the range abnormal characters.*

When he wrote his book, Chile harboured pretensions over Patagonia, so that he was obliged to use caution in delineating the eastern boundary, preferring to leave it undetermined. This notwithstanding, outside of Patagonia, where no controversy existed, he indicated that the frontier was formed, not by the line of separation between the Atlantic and Pacific water-courses, but "by the anticlinal line of the Cordillera de los Andes"—a very different matter, certainly, and which corroborates the Argentine contention.

* In Sheet No. 9 of the map of Pissis is shown the boundary line cutting an eastern affluent of the river Ñuble.

3. The quotations made by the Chilian Representative from the other geographers of his country, Gay, Asta-Buruaga and Domeyko, whose works have already been analysed with the minuteness required, are not very pertinent to the question, and it is, therefore, unnecessary to revert to them in detail here. Gay, when in the text of his book he sets forth the limits of the country, does not mention the waters in any sense whatever, and he simply states that—

“Chile is separated from the Argentine Republic by those immense Cordilleras which extend, without interruption, on all the western side of South America.”

Asta-Buruaga, after having stated that Chile is distinguished among other things by the majesty of the Andes, adds that on the east she is separated

“from the Argentine Republic by the dividing line of the slopes of the Andes.” *

The continental divide is not, therefore, his standard rule. Sometimes, it is true, this geographer mentions the watershed, but when doing so he seems to have anticipated giving rise to equivocal interpretations, and hastens to give his idea in its entirety, stating that this watershed is not that of the hydrographic basins, nor that of the spurs of the Cordillera, nor that of the plains, but that of the highest crests.

“This majestic Cordillera,” he writes, “except where it is fissured in the Straits of Magellan and among the channels of Tierra del Fuego, is so compact in its concatenation that throughout the long extension of Chile, it offers no other passage by means of which it can be crossed except the undulations in its ridge, *the highest elevation or crest of which—always a considerable one*—marks the watershed, to reach which it is necessary to penetrate through the openings and gorges of the streams flowing down from them into the valleys; and it is for this reason the latter are called passes or defiles.” †

That Señor Domeyko is quoted by the Chilian Representative can only be explained by its having been done in the erroneous belief that, whenever waters were treated of, reference was made to the continental divide. However, the quotation produces an effect contrary to what is intended, for in the same paragraph which the Chilian Representative cites, the theory of the Treaties, according to which the boundary runs through the main chain of the Cordillera de los Andes, and within it through the watershed belonging to this chain, receives fresh proof. Domeyko, in speaking of Chile, says:—

* *Diccionario Geográfico de la República de Chile*, by Francisco Solano Asta-Buruaga, New York, 1867, p. 98.

† *Ibid.*, p. 16.

“Included between the Pacific and the Andean watershed* this country forms the western slope of the immense system of the Cordilleras.”

It seems superfluous to mention that in order that Chile should form said slope, her territory must begin in the highest crests, in the edge or upper ridge of the Cordillera, afterwards sloping down to the ocean. Therefore Domeyko's assertions do not harmonise with a doctrine which insists upon the heights and snow crests being abandoned, in order to occupy the eastern, as well as the western, slope of the Cordillera.

4. After analysing these paragraphs, the Chilian Representative stated that these same ideas have always prevailed in the Argentine Republic, namely, those with regard to the continental divide, and although he quoted a number of writers, none of them support this theory. But, on the contrary, it is necessary to observe that when they mention the watershed these writers invariably referred, as it was natural they should refer, to the watershed proper and particular to the main chain.

The Statement read before the Tribunal by the Chilian Representative contains a paragraph from Dr. Hermann Burmeister. With the exception of a few errors of translation, the quotation is correct, but at the same time it is incomplete. The quotation stopped at the very point where the views of the author are explained and completed. To restore the paragraph to its full context, it must be borne in mind that, after mentioning the watershed, Burmeister adds :—

“Thus, north of the Argentine Republic, the boundary (*la linea*) follows the western side of the high plateaus of the Cordillera, and, these ceasing on the south, it continues along the western prolongation of the chain of the Cordilleras (*la Cumbre*). The valleys and gorges between these two chains belong to the Argentine Republic.”†

There could be nothing more conclusive. The western side of the high plateaus, the western prolongation of the chain of the Cordillera (*la Cumbre*), these are the limits which Burmeister considers settled; there, and there alone, must the watershed be sought. But there is, however, something more in Burmeister's work which does not appear in the Chilian statement, and which prevents one from trusting the former's opinion as supporting a view which involves abandoning the Cordillera de los Andes. Further on in his book he speaks of—

* It may be noted that he speaks of the watershed of the Cordillera, and not of the continental divide.

† *Description Physique de la République Argentine*, by H. Burmeister, Paris, 1876, vol. 1, p. 150. The words in parentheses appear in the French edition.

“the Cordilleras, the country's western frontiers, whose highest summits are crowned with volcanoes, extinct for the great part, and emerging from the midst of eternal snows.” *

And where are the *eternal snows* in the western frontier of the Republic, if the tracing of the continental water-divide is accepted? Where are the *highest summits*? They are seen many miles westwards from where some of the rivers, which cross the defiles, have their rise.

5. The Chilean Representative has lingered over the investigation of sundry communications exchanged in 1873 between the Ministers of the Argentine and Chilean Republics, part of them relating to the possession of Patagonia and part to the possession of valleys in the Cordillera itself. It is proper to observe, although only in passing, that some of the valleys under dispute at that date not only are situated east of the main chain of the Andes, not only are they situated east of its watershed, but, moreover, they are situated east of the continental divide. The Chilean Representative insists, notwithstanding his acknowledgment that these valleys are situated to the east of the continental divide, on proving that the traditional boundary, always recognised as such, was, without discrepancy of any kind, that of the said continental divide. The contradiction could not be more obvious. If the continental divide had been unanimously accepted, as is claimed for it, Chile could not have extended her territory east of said line; if Chile extended her jurisdiction to the other side of the continental divide, it is because that divide did not mark the international frontier. It will be seen further on that the Chilean Government, even after the signing of the Protocol of 1893, continued claiming valleys to the east of the water-parting of the Continent.

Now, putting aside this consideration, it must be noted that in the official notes exchanged by the Ministers, the water-systems of the Pacific and the Atlantic not only were not upheld or recognised as boundary line, but, on the contrary, special care was taken to mention the highest crest of the Cordillera, so that, subsequently, reference might be made to the particular watershed of said crest.

The statement of the Governor of Mendoza would not have been brought forward by the Chilean Republic had there not existed the constant tendency of confounding a mountain watershed with the water-divide of a continent,

* Ibid., p. 155.

dependent or independent as the case may be, of mountain features. It is true that in that statement the courses of waters, rivers and streams are mentioned, but it is not said that the boundary runs through their sources, as some proceed to the Pacific and others to the Atlantic—it is said, on the contrary, that “the greatest heights from which these” rivers start are what has always been “considered as the boundary between the two territories.” Mention is afterwards made of the difficulties arising from the existence of “two Cordilleras of equal height,” and from the torrents which are formed “when the thawing of the snow begins in the great chain of the Cordilleras”; the case of “the two main Cordilleras being found” is again laid stress upon; the case of the streams which have their origin “in the main Cordillera del Planchon” is considered, and it is then added:

“Further evidence in favour of the crests of the *Cordillera de los Andes* and the slopes on either side being the boundary with the Republic of Chile is the fact that all the private properties of this province situated in the interior of the range, considered these as the boundary to the west; this fact has never been disputed.”

The Representative of Chile afterwards quotes the opinion of the Argentine Minister in Chile, Don Felix Frias, contained in this paragraph:—

“‘Your Government’ (that of Chile) said he to the Minister of Foreign Affairs, ‘has agreed that the Andes are the eastern boundary of Chile, and when speaking of the demarcation of the frontier they referred to the operation of marking out in the Andes themselves the *divortium aquarum*, that is, the boundary line between both countries, an operation of Experts that has not as yet been carried out.’”

Such is the passage, and it could not be clearer. It does not say that it is right to go out of the Cordillera to seek on the Argentine pampas the normal or abnormal sources of the rivers and streams that run in opposite directions to pour their waters into the Pacific and Atlantic Oceans. The summit of the Cordilleras de los Andes constitutes the boundary, and in it must be sought the *divortium aquarum* of the Treaties. If there were room for a single doubt it would have to disappear by a simple observation. The words transcribed above form part of a long note in which hundreds of arguments are brought forward to defend the natural boundary formed by the immense masses of the Cordillera. It is often repeated in this note that the frontier runs over “the culminating line of the Cordillera,” over “the great walls of the Cordillera,” over “the frozen Andes which serve us as a barrier,” “over the immense and almost inaccessible Cordillera,” over the “chain of towering mountains covered by eternal snow,” etc.

The Representative of Chile has mentioned, in Señor Frias, an enlightened defender of the Argentine doctrine, and has quoted just the document in which there is the greatest agglomeration of proofs against any theory that could in any way claim to carry the frontier outside the Cordillera and away from its highest crest. Señor Frias examined old colonial papers and modern extracts from writers of every country, to come to the conclusion that on the crest and only on the crest should the boundaries of the two Republics be marked out, and that, to use his own words, "if there are in the world boundaries that deserve the name of natural, it is those high and prolonged chains of mountains which traverse the whole extent of America." But in spite of the explicit terms of Señor Frias' categorical statement, there would appear to be an intention of making it harmonise with a theory which partly does away with the main chain of the Andes in order to enclose within a line never agreed upon, great areas of the southern plains of Argentina. As the first paragraph mentioned does not meet this end, it has been thought necessary to enunciate another which is even less compatible with that doctrine.

"Respecting the inaccuracy which your Excellency believes to exist in the topographical maps of Señor Pissis," wrote Minister Frias, "Your Excellency will allow me to say that the Government of Chile here also appears in contradiction with themselves, since this gentleman has done nothing else but carry out the official instructions given him, as appears from the contract to which I have before referred, marking out on the Andes the anticlinal or dividing line of the waters."

Señor Frias considered that the anticlinal line of the Cordillera, which nobody will seek on the eastern plains, was the dividing line of the waters to which he alluded, and he explained his thought by adding :—

"For the Government of Chile has understood, like everybody else, in accordance with a universally adopted international rule, that when a mountain or Cordillera separates two countries, the boundary between them is marked *on the crests* by the watershed."

The principal and most important element is the crests, to Señor Frias' mind, and on the crests the watershed. There is nothing resembling the inter-oceanic water-parting, or anything like it, in the reply, also quoted, by the Chilean Minister, Señor Ibañez, who refers, as he himself has written, to "the *divortium aquarum* in these mountains" (the Cordillera de los Andes), and not to the separation of the hydrographic basins of the rivers tributary of the Atlantic on one side, and of the Pacific on the other.

It appears needless to continue an examination of the documents to which the Representative of Chile attributes such capital importance. They are all made on the same basis; they all follow one identical purpose.

Among them, however, there is one in which an evident error has given rise to comments which it is necessary to refute.

The Minister for Foreign Affairs of the Argentine Republic, Señor Tejedor, in a Report sent to Congress, said :—

“There has always been a common and traditional understanding that the jurisdictions of Chile and Rio de la Plata were by right delimitedated by the crest of the Cordillera de los Andes, running from north to south, down to the Straits of Magellan, and from parallel lat. $41^{\circ} 10'$ S., where this natural feature ceases, by the line dividing the waters flowing down towards both seas, taking for this purpose the middle between the points where sources or traces of waters are found, and to the south ending this line the most prominent point of the continent, i.e. Cape Froward, more or less on $53^{\circ} 50'$ S.”

Señor Tejedor states, as is seen, that whenever the Cordillera is the boundary its crest must be followed; that this has been a common and traditional understanding, and that only where the Cordillera ceases must the *divortium aquarum* be followed. The Representative of Chile transcribes the paragraph, and deduces therefrom that Señor Tejedor is a partisan of the inter-oceanic divide all along the frontier, where the Cordillera exists, and where the Cordillera does not exist. The absence of logic is evident. The idea expressed for cases in which the Andean barrier disappears cannot be applied to the cases in which it displays its grandeur and majesty, and the reasoning is still less logical when the author has himself undertaken to say—

“that the jurisdiction of Chile and Rio de la Plata were by right delimitedated by the crest of the Cordillera de los Andes, running from north to south, down to the Straits of Magellan.”

It is, indeed, stated that the Cordillera disappears to the south of parallel $41^{\circ} 10'$, but it can easily be seen that this statement is due to a printer's error. It is inconceivable that the crest of the Cordillera de los Andes should be said to serve as a boundary as far as the Strait of Magellan, as stated by Señor Tejedor, and that, in the next line, it should be added that the Cordillera disappears at parallel $41^{\circ} 10'$, distant twelve degrees latitude to the north of the same strait. The contradiction would be inexplicable.

Facts prove that the Cordillera extends along the whole western edge of

America, and the Treaty of 1881 has respected it as a frontier as far as parallel 52°. Up to there, if Señor Tejedor's words apply, the crest of the chain must unfailingly be followed, and never any other doctrine imagined for regions in which mountains are not found.

6. The Representative of Chile also appeals—always with the idea that, whenever the *divortium aquarum* is mentioned, reference is made to the continental divortium—to the project presented to the Argentine Senate in 1871, which contains the following expressions: “the *divortium aquarum* in the Cordillera de los Andes”; “the *divortium aquarum* in the crests of the Andes.” The clearness of the texts is such that their meaning cannot be doubted. When the *divortium aquarum* is determined on a range of mountains, and localised on the crests of it, it cannot be understood, by implication, that the crests may be abandoned, and that the range may also be abandoned in favour of the plains. The authors of the project fixed their eyes on the Cordillera, on its gigantic crests, as a principal feature which ought to be taken into account, and then determined that on those crests, and never swerving from them, their own peculiar *divortium aquarum* should be sought.

7. The next quotation of the Chilean Representative is from a book entitled *La Provincia de San Juan en la Exposicion de Cordoba* (Geography and Statistics), in which the following phrase is found:—

“Boundaries and demarcation of the province: to the west the *high central chain of the Cordillera de los Andes*, or dividing line of the waters which separates it from the province of Aconcagua and Coquimbo in the Republic of Chile.”

The phrase used by the author, Señor Igarzabal, cannot be more conclusive—the divide *on the high central chain*; and that, it is needless to say, is not the *continental divortium aquarum*. The line agreed upon by the two Experts on October 1, 1898, passes along the edge of that central chain, which is the same that the Chilean Expert has ever considered as such boundary in his works as geographer, historian and expert.

8. Señor Antonio Bermejo has been no less conclusive in his writings, and yet the Representative of Chile has also quoted him. The paragraphs in which he believes reference is made to the continental divide, far from meeting that conception, state once more the idea that the boundary runs over the upper crest of the Cordillera, that the natural and impassable boundary is constituted by the enormous masses of that Cordillera. The words quoted from Señor Bermejo are the following:—

"The demarcation between the Argentine and Chilian possessions on the *crests of the Andes*, is connected with the discussion about the Cordillera grazing lands (*potreros*) which we proceed to examine. The *high* mountains of the Andes, extending to the extreme south of the continent, separate in a diametrically opposite direction the waters which fertilise the territories lying on either side of them. Seeing the extent of the Cordilleras, which are of considerable breadth throughout nearly their whole length, it is necessary to adopt as regards the valleys comprised in them, a line of demarcation awarding these equitably and rationally to the frontier nations. In this case the dividing line of the waters or the *divortium aquarum*, fixed as the boundary by all writers, determined a clear and convenient basis for the delimitation of the territorial sovereignty. Moreover, many publicists, such as Bluntschli, show that even in doubtful cases the dividing line of the waters constitutes the legal boundary."

It must be observed that in the Statement read by the Representative of Chile the first passage of the paragraph has been omitted, and hence the erroneous conclusion which has been arrived at. In the way it has been presented the quotation would seem to strengthen the Chilian argument; but had it been cited in its integrity, the result should have been contrary to what it was designed to prove in the Statement. Señor Bermejo enunciates, in the suppressed passage, that he is going to study the rules of demarcation "*on the crests of the Andes*," and nobody has ever raised any doubt as to the fact that the feature which, on that crest, must be taken into account is the separating line of the waters which fall from the height down the opposite slopes of the chain. Besides, and even though this first paragraph did not exist, it would not be possible to doubt the meaning of the author, noticing that reference is made to "the elevated mountains of the Andes," and that he grounds his conclusions on the opinion of Bluntschli, who, as will be seen further on, is very explicit regarding the Argentine contention. And since the Representative of Chile has thought fit to mention Señor Bermejo's book, to define the views which that statesman had on the Andean boundary, it may be well to complete the quotations by other parts of the same book, where every attempt to abandon the snow-capped crests of the Cordillera is repudiated, and therefore the continental divide is repudiated too. The following are the passages:—

"Imaginary lines may be encroached upon at any moment, but the real boundary made by Nature herself on the highest crests in America, although it may open a passage to the telegraph for the confraternisation of the two peoples in the fruitful work of progress, also raises between the frontiers of the Argentine Republic and Chile all its colossal grandeur, to tell both nations that God has condemned the suggestions of ambition and covetousness. The preservation of the natural and traditional boundaries forms, in my opinion, something like an ineludible law of history, a law which defeats the arrange-

ments of cabinets and at the same time scorns the preponderating power of war, armed with the right of conquest, raising upon the ephemeral lines planned by the conqueror and the politician, the immovable line of the Supreme Ordainer of the worlds. . . . Thus also the Argentine nation and Chile in peace and in war, with or without arbitrations, will necessarily stop at the snow-capped crests of the Andes with which Providence has defended their soil. Chilians and Argentines, without rancour or prejudice, will seek each other then to seal on that gigantic altar their eternal alliance, consecrating in deference to right, peace and justice the boundary marked out by the hand of God between the two Republics." *

9. The Representative of Chile concludes his enumeration of opinions previous to the Treaty of 1881, by mentioning two maps, the one which he attributes to Burmeister and that of the Commission presided over by Don Ricardo Napp. In both, it is stated, the boundary is made by the line of the continental divortium, while the truth is that neither of the two maps has any bearing on the pending controversy.

With reference to the first, the Chilian Statement says that Dr. Burmeister has made "*a map of that Republic (the Argentine) down to lat. 40°, which was considered the best cartographic document of that country.*" As a matter of fact, however, Dr. Burmeister did not publish such a map, and therefore the argument falls through.

The map by the Argentine Central Committee for the Exhibition at Philadelphia has no importance in the controversy. It is added to a work entitled *The Argentine Republic*, and the author, Señor Napp, writes concerning it :—

"It appears superfluous to state here once more that these last data, however accurate now, cannot be *considered as definitive, which remark also applies to the annexed map, on account of the said boundary questions.* We must also observe that the inter-provincial boundaries, as they stand in our map, may perhaps require certain modifications in the course of time, because, like the international ones, they are not yet fixed with precision. *The object of this map and of this book cannot be to give an opinion or advice respecting the territorial claims of the provinces or confederate states of the Argentine Republic ;* but, having to show these boundaries in our map, we have consulted the special report of the special commission appointed by the National Senate for the purpose of inquiring into these questions, and although it has not yet been passed by Congress, it has served as a basis—as far as possible—in our map, respecting both the interprovincial boundaries and those of the national territories, their names and division ; though we do not in any way claim to anticipate the definite decision of Congress. It is not improbable that in

* *La Cuestión Chilena y el Arbitraje*, by Antonio Bermejo, 1879, Buenos Aires, pp. 59 and 60.

the other chapters of this book, especially in the description of the provinces, *data will be found not corresponding to the division indicated in our map, because the data obtained for the purpose may have been taken from older sources.*" *

If, then, the author attributes to his map such a secondary merit, it is not possible to attribute decisive authority to it, since it is only a sketch map.

Moreover, Señor Napp, who did not pretend to publish a complete map of the Argentine Republic, did not pay any attention to the fact that in Patagonia there are many rivers which cross the Cordillera. At that time Patagonia was an uninhabited region; his own map shows this. Napp supposed that, along its whole extent, the rivers rise on the high crest of the Cordillera, and drew them so; but in spite of this error, when he has spoken of the boundaries, explaining his map, he has not referred to the continental divide, but to the crest of the Cordillera de los Andes, as is proved by the following paragraphs taken haphazard from his book:—

"Her rights (the Argentine Republic) to a considerable part of the Patagonian lands have even been disputed lately. The Republic of Chile, however, from which these attempts come, has demonstrated by herself the illegitimacy of her claims, for the districts which compose this latter country are clearly indicated, not only in her own Constitution, but also in the Treaty by which Spain, the original possessor, recognised her independence, naming successively all the parts that form her, and in this document no Chilian right of possession in Patagonia is mentioned." †

Speaking of the frontier, in a concrete manner, Señor Napp says:—

"To the west, the boundaries run from the southern point of Cape Hornos (lat. 56° and long. 67°) *along the western crests of the Cordillera*, as far as lat. 45° and long. $71^{\circ} 30'$, and then to N.N.W. until lat. $26^{\circ} 20'$ and long. 69° , thence following a more N.E. direction until lat. 22° (or lat. 20°) and long. 66° , where it meets the northern limit." ‡

Further on, Señor Napp deals with the province of Mendoza, and says:—

"Bounded on the north by the province of San Juan; on the east by San Luis; and on the south by the Pampa, it has for its western boundary the frontier between the Argentine Republic and that of Chile, situated *along the western crest of the Cordillera.*" §

Therefore Señor Napp, as all the other authors whom the Representative of Chile has quoted, express themselves in a sense which, as was to be foreseen,

* La República Argentina, by Ricardo Napp, Buenos Aires, 1876, p. 26.

† Ibid., p. 23.

‡ Ibid., p. 26.

§ Ibid., p. 435.

does not permit one to think that it was their intention to advise the swerving from the Cordillera, since it was purposed to trace a line in the Cordillera itself.

All writers who have dealt with the Argentine-Chilian frontier, at all times and in all countries, have been unable to disregard the crest of the Cordillera, and have believed that it would never admit of dispute that this loftiest ridge should constitute the agreed barrier between the jurisdictions of the two nations, as it was already the barrier which nature had placed in order to prevent any tendency to territorial expansion. For all of them the natural boundary was the orographical one, and in no case have they taken into account the problematical continental divide. They have accepted a palpable fact, instead of following theoretical speculations.

CHAPTER IV.

- Summary*—1. OPINIONS OF THE CHILIAN EXPERT.
2. THE CORDILLERA AS DESCRIBED BY THE CHILIAN EXPERT.
3. THE CHILIAN EXPERT'S DEFINITIONS AND DESCRIPTION OF PATAGONIA.

1. OPINIONS OF THE CHILIAN EXPERT.

THE Chilean Expert, Señor Barros Arana, took a very important part in the diplomatic negotiations previous to the Treaty of 1881, and his views respecting the boundary line which he has proposed in the name of his Government, have given rise to the questions and differences of opinion submitted to the arbitration of Her Britannic Majesty's Government. He is the author of a work on physical geography,* in which he expresses ideas completely opposed to those which he has since maintained as Chilean Expert. Taking into account the observations of all the authors who have been mentioned in the preceding Chapter, he gives a description of the physical features of Chile; and his opinions with respect to the Cordillera de los Andes will suffice of themselves to show the correctness of the frontier line proposed by the Argentine Expert.

If Señor Barros Arana's opinions are quoted, it is certainly not to show his contradictions in the matter. The object is much more important. Señor Barros Arana's works had a reputation in his own country and in the Argentine Republic, and the object in view is to show that his conceptions of "the Cordillera" were the same as those of the other Chilean statesmen. His books and university teaching, as well as those of Señores Pissis, Domeyko, Gay, Amunátegui, Vicuña-Mackenna, have in reality formed the basis of the opinions generally held in the Argentine Republic and Chile concerning the "Cordillera de los Andes."

* *Elementos de Geografía Física* by Diego Barros Arana, 1st edition, Santiago, 1871; 2nd, 1874; 3rd, 1881; 4th, 1888.

2. THE CORDILLERA AS DESCRIBED BY THE CHILIAN EXPERT.

The descriptions of Señor Barros Arana are so graphic that the somewhat lengthy quotations made are perhaps excusable. Referring to the mountains of South America, he says *:—

“The chain of the Andes, so remarkable on account of its enormous length of more than 7000 kilometres, extending through nearly fifty degrees of longitude, and of the great height of its peaks, is less regular than might at first be supposed. It starts at the southern extremity of America, and it could even be said, at the island of Tierra del Fuego, where a sufficiently elevated height, Mount Sarmiento (2106 metres), is to be found. Running along the western coast of the continent, it becomes gradually higher, until between lat. 33° and 31° rise two gigantic peaks—the Tupungato (6710 metres) and the Aconcagua (6834 metres)—this latter being the highest point in the whole chain. From this place rise several ridges which extend towards the eastern side, while on the western rises another very much lower chain which skirts the coast of Chile, *and which must be considered as a separate chain*. Farther north, these eastern ramifications increase, but in lat. 22° , where the Cordillera inclines to the north-west, following the trend of the coast, a true chain of lofty mountains strikes out, which is called the Cordillera Real, which, on the east, forms the great Bolivian tableland, and from which rise two peaks, Illimani (6445 metres) and the Nevado de Sorata (6487 metres) which until recently were considered to be the loftiest mountains in America. North of Lake Titicaca, the two chains connect by a transverse ridge, but continue to develop in a north-western direction parallel to the coast. Although the eastern Cordillera is cut through in many places by tributaries of the Amazon, *its general direction is easily recognised*.”

P. 54.—“The lowlands and plains which, in Chile, extend from the range called Chacabuco to Reloncavi Bay, and are enclosed between *the Cordilleras of the Andes and the coast chain of mountains*, is one of the most extensive, most beautiful and richest longitudinal valleys that exist.”

In chapter xv. p. 296 of the same first edition, Señor Barros Arana says :—

“Chile is formed by a narrow strip of uneven and mountainous territory which stretches † *from north to south, west of the great Cordillera de los Andes*, from lat. 24° S., that is to say, *from the Desert of Atacama as far as Cape Horn*, lat. $55^{\circ} 48'$ S., i.e. in one extension of $21^{\circ} 48'$. The width of this strip of territory varies from 150 kilometres at lat. 33° S. to 180 kilometres at lat. 38° S. STILL FURTHER SOUTH THE TERRITORY BECOMES MUCH NARROWER, the ocean penetrates into the land, forming numerous islands, until *it bathes the foot of the great Cordillera*. This narrow strip of ground owes the

* 1st edition, 1871, p. 46.

† “From north to south,” and “as far as the parallel of lat. 52° S.,” are expressions to be found in the 1881 Treaty, so that the framers of that Treaty might have taken the definition of the boundary from Señor Barros Arana’s work.

special aspect of its surface to two chains of mountains which run parallel from north to south, enclosing a long valley. From the northern extremity to lat. $33^{\circ} 4'$, this valley is frequently interrupted by transverse ranges, separated from each other by more or less narrow valleys, through which flow the rivers that descend from the Cordilleras. In lat. $33^{\circ} 4'$ S. the transverse chain of Chacabuco separates the northern from the southern region, and from that point the longitudinal valley is open to view. To the east rises *the great chain of the Andes formed by rugged mountains, abrupt ravines, declivities streaked by stratifications of variegated hues, numerous volcanic cones, jagged crags and inaccessible summits lost in the regions of eternal snow.* To the west stretches the chain of mountains called the '*Cordillera de la Costa*,' formed by low, round, flattened granite mountains, the undefined shapes of which resemble the waves of a sea quieting after a raging storm. These two chains come close together or recede from each other, thus alternately narrowing or widening the central valley; but in general it may be said that this valley is more open and extensive in its prolongation toward the south. At lat. $41^{\circ} 30'$ S. the valley disappears, the sea taking its place, *and the coast chain is to be seen forming more or less extensive islands up to the latitude of Cape Horn.*

"There is no country on the face of the globe which possesses a more marked and original conformation than that of Chile. A long strip of territory *which only measures long. $2\frac{1}{2}^{\circ}$ in its greatest breadth, extending from north to south in a direction almost parallel with the meridian,* which, owing to this very circumstance, partakes of a great diversity of climate; such are its most essential and distinctive features.

"This long strip is divided naturally into three different regions: 1st, the Northern or Mineral Region; 2nd, the Central or Agricultural Region; 3rd, the Southern or Insular Region."

P. 297.—"The first is comprised between lat. 24° and lat. 33° S. There, the general features of the country are more indefinite. The great Cordillera de los Andes is perfectly defined; but the Coast Cordillera is not so easily distinguishable, owing to the numerous transverse chains, which traverse the whole territory from east to west, leaving the central valley only visible at intervals."

P. 298.—"The second is comprised between lat. 33° and lat. $44^{\circ} 30'$ S. The Chacabuco transverse chain forms its boundary on the north. In this region, the general conformation of the country is more defined; the two mountain chains extend almost parallel, leaving in the centre the valley in which all the agricultural districts of the country are.

"The southern region extends from $44^{\circ} 30'$ S. down to Cape Horn, the southern extremity of the Continent. *Instead of the valley, the sea separates the parallel chain of mountains. The Cordillera de los Andes,* much lower in this region, only presents wooded slopes, *bathed by the ocean.* The Coast Cordillera is interrupted in many parts, and forms chains of islands varied in extent and covered with dense forest.

"The rains are unceasing in that region; the temperature is always cold; agriculture cannot thrive; and fishing, which presents an abundant field, has not yet been developed on a large scale. . . .

"In spite of the irregularities presented by these chains, and of the broken state of the ground, the whole of the Chilean territory consists of an inclined plain which

descends from the slopes of the Andes to bury itself in the Pacific Ocean, and which is interrupted by the coast ridges. It is divided by five longitudinal lines or zones, which are easily recognised, and which considerably modify its character.

"The first, i. e. the most eastern, is formed by THE CULMINATING LINE OF THE ANDES, WHERE TREES AND BUSHES DISAPPEAR, AND ON THE HIGHEST RIDGES OF WHICH THE SNOW NEVER MELTS. This chain, which is very much lower in its southern extremity, gradually rises as it extends northwards, attaining its greatest elevation between lat. 34° and 32° S. to decrease a little further north, CONSTITUTING ALWAYS A BARRIER BETWEEN CHILE AND THE ARGENTINE REPUBLIC,* which is only broken by narrow and majestic defiles. Numerous volcanic peaks rise up in the midst of these prodigious heights. Numerous torrents, formed by the melting of the lower snows, flow from the summits, and are the origin of the rivers which water the whole of the country."

P. 299.—"The second zone is formed by the rugged ridges (*Serranias*) which form the flanks of the great Cordillera. In the northern region this zone is destitute of trees; but the central region displays luxurious arboriferous vegetation, destroyed to a great extent by man, but in the southern region it grows vigorously and abundantly. The *Serranias* extend irregularly towards the west, at times occupying a vast expanse of territory. Numerous valleys, through which flow the rivers which rise in the high Cordillera, interrupt the general monotony of the zone. In these valleys the flocks find an abundance of pasture, and the views are exceedingly beautiful. From lat. $41^{\circ} 30'$ S. down to the extreme south, the sea washes the base of these *Serranias*.

"The third zone is formed by the longitudinal valley. In the northern regions, this valley is scarcely perceptible, or rather, almost entirely disappears. Transverse chains, consisting of mountains differing in form, colour and appearance from those which constitute the coast chains, traverse the territory at various points from east to west, and serve as a connecting link between the two main chains. Instead of the rounded masses with smooth profiles, and the gentle undulations which are characteristic of the Coast Cordillera, groups of more serrated mountains appear there, and in their steeper and denuded gorges, the strata appear as variously coloured ribbons separated by lines more or less distinct and parallel to each other, either straight or curved, in which the miner's experienced eye discovers mineral veins.

"Between these transverse chains, the breadth of some of which is very considerable, the valley can be distinguished—dreary, arid, devoid of vegetation, where rain is scarce, and the rivers are insufficient to irrigate the fields; but agreeable and productive in the narrow valleys formed by the rivulets which fall from the mountain.

"The upper ridge of these chains is of unequal undulation, at some points attaining considerable altitude, whilst lower at others. Generally, a line forming the axis of the central valley is recognised in these ridges (*Serranias*) by a depression of the points through which the valley would pass were it not interrupted by these transverse chains.

* The words "BETWEEN CHILE AND THE ARGENTINE REPUBLIC," which exist in the first and second editions, have been suppressed since the third, published in 1881, that is to say, after Señor Barros Arana had, as Minister Plenipotentiary of Chile, negotiated the Treaty of 1876, in which it is stipulated that the boundary between Chile and the Argentine Republic is the Cordillera de los Andes.

"The last chain to interrupt the central valley is the Chacabuco, which *quits the great Cordilleras at the heights of the Juncal*, and in lat. $33^{\circ} 10'$ advances slightly towards the north, to continue in a westerly direction until it unites with the Cordillera de la Costa. This chain, from which rise summits almost comparable *with those of the Andes*, and which, owing to its breadth, occupies a large space, terminates this system of interrupted valleys. After it, i.e. in lat. $33^{\circ} 4'$, there is a great transverse valley which extends without real interruption along the whole central region of Chile."

P. 300.—"This valley forms the richest and most fertile region of the country, and it might be said that it is one of the richest and most productive of the world. It is watered by the numerous rivers which descend from the Andes, and which, running from east to west, flow into the Pacific. In some parts, particularly in the northern section, there are a few mountains, some of which are of considerable elevation, but they are not connected with the longitudinal chains which enclose the valley. . . ."

"This part of the longitudinal valley, in its northern section, is of considerable elevation above the level of the sea, but descends gradually as it extends towards the south. In lat. 38° this depression forms the basin of the great lakes formed by the torrents *which descend from the Cordillera*; and finally, in lat. $41^{\circ} 30'$, it becomes still lower, until it is covered by the ocean, forming a gulf, which in reality is only the continuation of the valley. Its total length is 930 kilometres, but its width varies considerably. In its origin it is 25 kilometres wide; further on, at Paine Strait, at lat. 34° S., it is barely a few metres in width; but it then opens out and continues to widen as it extends towards the south. As its average width may be estimated at 50 kilometres, it may be said to have a superficial area of 46,500 square kilometres."

P. 301.—"The fourth zone is formed by the mountains of the coast, *with winding profiles parallel with the ocean shore*. It includes the western slopes of the first range of mountains, the plateaus which extend along many of its heights, and lastly the eastern slopes, which, at times, spread out in the distance forming less elevated Serranias. The central part of this chain, covered with woods in other epochs, now possesses but little wooded country throughout the greatest part of its extent, but beautiful forests still exist in the southern region. *This chain is frequently cut by rivers which force their way between the mountains as they flow towards the sea*. It does not possess such lofty elevations as the Andean Cordillera; a very remarkable fact being that its principal altitudes are in a line with, and we might almost say, *in the same latitude as the more lofty peaks of the Andes*. In lat. $41^{\circ} 44'$ S., the coast chain, which gradually becomes lower, disappears under the sea, the highest peaks of it again appearing in its southern extension in the form of more or less large islands, which form the numerous archipelagoes which extend along the coast of the entire southern region of the continent."

P. 305.—"These series of mountains, which extend through Chile, *have rather difficult passes, through which it is possible to traverse them*. Occasionally these consist of steep, almost perpendicular winding defiles, *made by some ancient torrent, or through a breach made by volcanoes or earthquakes*; at times, one is compelled to climb to a great, apparently inaccessible altitude. THE ANDEAN CHAIN, MUCH LOFTIER THAN THE OTHERS, HAS THE MORE NOTABLE PASSES; the lowest of them all being the Nahuel-Huapi in lat. $41^{\circ} 30'$, which is 1500 metres above the level of the sea; but there are others which attain an enormous altitude."

P. 308.—“When the general configuration of Chile is known, it will be understood that it cannot possess rivers of such volume and length as those which run through more extensive countries. In fact, the *Chilian rivers almost all rise in the Andean Cordillera and traverse a belt of narrow country, having such an abrupt incline that it could be almost compared to the slope of a mountain*, and they have, in general, a similar current to that which is observed in the upper courses of rivers in other places.”

3. THE CHILIAN EXPERT'S DEFINITIONS AND DESCRIPTION OF PATAGONIA.

Referring to the greater elevations of a chain, Señor Barros Arana says (p. 42) that—

“these frequently do not rise properly *in its central ridge*, as happens with the peak of Aconcagua, which is situated *on the eastern slope (vertiente) of the Andes of Chile.*” *

The central ridge is the principal chain, and according to Señor Barros Arana—

P. 41.—“The main chain of a group or system of mountains is considered to be the chain whose slopes and sides shed the greatest quantity of waters which feed great rivers.”

P. 40.—“The *Pié* (foot) or base of a mountain is the place where it commences to separate from the plain; *Fulda* (side), the lowest part of the slope; *Laderas or Costados* (slopes or sides), the whole extent thereof, which in some parts of Spain are called *Alcores* (small hills); *Gola* (gullet), the whole contour of its *Costados* (slopes); *Cumbre* (summit), the part which rests on the *Gola*; *Cima* (peak), the part which surmounts the *Cumbre*; the *Punto Culinante* (the culminating point), the highest part of the *Cima*; the *Costados* (slopes) of the mountains, down which the waters flow, are called *Vertientes.*”

Speaking of the valleys, he says :—

P. 54.—“Geographers made a further distinction between the different valleys, according to their distribution in the mountain systems. Those which lengthen out between two mountain chains, following the prolongation of these two chains, are called longitudinal.”

Señor Barros Arana, according to this definition, applies the word “*vertiente*” to the general slope of the mountain range, as thus :—

P. 212.—“It is known that the Cordillera has a much steeper slope *upon its western slope* (*‘vertiente’*) and for this reason it must retain upon its slopes a smaller quantity of snow than

* If the word “*vertiente*” had the meaning of “spring,” as claimed by the Chilian Representative, the Mount Aconcagua, “the most culminating point of the Andes,” would be situated, according to Señor Barros Arana, upon a “spring.”

on its eastern slope (*vertiente*). Further, the western slope (*vertiente*) receives the sun's rays at the hottest hours of the day, when the general warmth of the temperature has overcome the coldness of the morning; nevertheless, it is observed that the line of perpetual snow is lower on the Chilean side than on that of the Argentine Republic."

P. 211.—"The Himalayan range stretches from east to west in the Northern Hemisphere, and very little to the north of the Tropic of Cancer. *Its southern slope* ('*vertiente*') receives more heat than the northern, and on account of its declivity it receives the rays of the sun almost perpendicularly, yet it is observed that the line of perpetual snow is nearly 1100 metres lower on this side than upon its opposite side."

According to Señor Barros Arana, the slopes of the Himalayan range may be compared with the slopes of the Andes Cordillera; and thus the Himalayan range is the one which corresponds to the Andes Cordillera, whilst the chain of the Karakorum, which is separated from the Himalayas by the basin of the river Indus, resembles in a certain way the Cordillera Real of Bolivia. As Señor Barros Arana points out, in the Himalayan range the same phenomenon occurs as in the Andes. It rains much more on its southern than on its northern slope, as in the Andes range; to the south of parallel 30°, it rains more on the western than on the eastern slopes. Large affluents from the Indus and the Brahmaputra cut through the Himalayas and carry to the sea, situated to the south, the waters of the northern slope, just as the waters of the eastern slope of the Andes, which flow from the Cordillera after cutting through the range, empty themselves into the Pacific. The line of the Himalayan watershed is not situated, according to Señor Barros Arana, in the Tibetan plateau, but in the prolonged ridge of the Himalayan range; and therefore, applying the same argument to the Cordillera watershed, the latter proceeds from the crest of the Cordillera itself, and not from the Patagonian table-land.

He also describes Patagonia thus:—

"Patagonia, from its southern extremity to the banks of the river Colorado, is nothing but an immense desert, in which at intervals only, a stunted and thorny vegetation appears; brackish waters, saline lakes, incrustations of white salt, alternate with this sparse vegetation. This aspect continues to the base of the Andes, *the slopes* ('*vertientes*') of which are almost bare on that side."

In the paragraph quoted Señor Barros Arana gives to the word "*vertientes*" its true meaning according to the Treaties of 1881 and 1893, though he may afterwards have attempted to modify this meaning.

He admits that in some cases the line of separation of two hydrographic regions is interrupted by tracts across which the waters can pass from one basin

to the other ; and with reference to this phenomenon he mentions the fact, according to data obtained from natives, that a stream of water, copious and, it may be said, even navigable, flows across the Cordilleras to the lakes of Riñihue and Neltume, and puts the Atlantic and Pacific in communication ; it is, however, very properly added that “this singular phenomenon has not been thoroughly examined.”

Thus, just as for Señores Pissis and Domeyko, so also for Señor Barros Arana the culminating line of the Cordillera de los Andes bounds Chile on the east, its territory being formed by an inclined plane which falls away from the slopes (faldas) of the Andes to bury itself in the Pacific Ocean, the central longitudinal valley separates the Cordillera de los Andes from the Cordillera de la Costa. In the central chain, which contains the culminating line, are not always situated the absolutely greatest heights of the Cordillera, some of which are found outside the slopes or descents, eastern and western, of that main chain. The meaning of “vertientes” in the case of the Cordillera de los Andes, is restricted to the descents (laderas) of its central chain. The culminating line of the Andes,* on whose crests (cumbres) the snow never disappears, constitutes for ever a barrier which is only interrupted by narrow and majestic defiles, between Chile and Argentina (according to Señor Barros Arana in the 1871 and 1874 editions of his book). From those summits spring numerous torrents formed by the melting of the lower snows, which are the origin of the rivers that water the whole territory. Indeed, through one of these majestic defiles, should be found the supposed river communication which Señor Barros Arana mentions in his work, at the height of Lake Riñihue, a defile which in fact exists, and is that which carries to the said lake the waters of the Lacar situated to the east of the Cordillera. It is as well to mention these defiles, and to take into consideration the courses of the river Puelo, explored by Lieutenant Francisco Vidal Gormaz of the Chilean Navy, in 1868, who assigned its origin in a lake *situated to the east of the Cordillera*, and of the river Aysen — that is to say, the Rio de los Rabudos of the Colonial chroniclers — *figured in some maps as forming an interoceanic communication by means of a large lake situated within the Cordillera, and which discharges its waters by that river towards the Pacific, and by the river Descado, towards the Atlantic.*

* *Culminating* line, for Señor Barros Arana, as for Señor Pissis, is the highest crest, and not the line of absolute water-divide. He says in his book, “Aconcagua is the *culminating* point of the Andes.”

When Señor Barros Arana wrote his book, although there had been carried out important explorations which confirmed the current opinion that Lake Lacar discharged its waters into the Pacific by the Valdivia River, from the east of the Cordillera, yet the fact appeared improbable, according to the statement of one of the most competent explorers of those regions, and who prudently restricted himself to stating that the Indians of the regions mentioned it as a fact; but the same explorer admitted the existence of the complete severance of the Cordillera by the river Puelo and also by the Aysen or Rio de los Rabudos, a fact confirmed afterwards, in 1871, by Captain Enrique Simpson of the Chilian Navy. The Tribunal will find the truth of this assertion in the map published at the time at Santiago de Chile, "in view of the better official maps and explorations," of which some editions were corrected by Señor Barros Arana himself, as it is stated in that map *that the Cordillera de los Andes appears cut by the two rivers through the whole of its transverse extent.*

The work of Señor Barros Arana was, and still is a text-book in the higher schools of Santiago.

In it Señor Barros Arana admits also that the Cordillera de los Andes contains chasms formed by *torrents or by apertures which volcanoes or earthquakes have made*, and that in the Cordillera have been *observed prodigious volcanic phenomena, such as the overthrow of mountains, and formations of lagoons by the stopping of the current of a river*; and it is well to bear in mind this remark of Señor Barros Arana on the unstableness of watercourses, because, some time after, as Chilian Expert, he only took in consideration those watercourses, when marking out a boundary which the Treaties prescribe should be "immovable."

CHAPTER V.

Summary—1. CHILIAN OFFICIAL VIEWS REGARDING THE WORDING IN INTERNATIONAL BOUNDARIES.

2. THE CHILIAN-BOLIVIAN TREATY OF 1866.

3. THE CHILIAN-BOLIVIAN TREATY OF 1874.

4. OTHER OFFICIAL DOCUMENTS.

1. CHILIAN OFFICIAL VIEWS REGARDING THE WORDING IN INTERNATIONAL BOUNDARIES.

EVIDENCE of great value, respecting the meaning and signification of the words "*Cordillera de los Andes*," has been already laid before the Tribunal, to show how the dividing line between the two countries was generally understood in the Chilian and Argentine Republics.

It would be well now to present the official proof that the Argentine Expert's interpretation of the Treaty of 1881 is identical with that of both Governments at the time of the framing of the Treaty, and also that it agrees with the only one admitted in the international dealings of the Chilian Government prior to the said Covenant.

In fact, not only the Chilian Constitution, not only the National Hymn, and not only the Treaty with Spain, had proclaimed, *urbi et orbi*, that Chile had as her eastern boundary *the Cordillera de los Andes*; but all public documents, all internal divisions of the Chilian provinces marked that limit, and the language adopted in official Acts had become so clear and plain on the matter, that Chile defined the "*Cordillera*" simply as *the eastern boundary of Chile*. "To the eastern boundaries of Chile," stated the Treaty between Chile and Bolivia, in order to express *the Cordillera de los Andes*. And what was understood as *the Cordillera de los Andes*, according to the Chilian Constitution and Chilian Government? What was understood, according to them, as *the eastern boundary of Chile*?

Definitions which do not refer to any particular case, but as a general definition of *the eastern boundary of Chile*, will be laid before the Tribunal.

2. THE CHILIAN-BOLIVIAN TREATY OF 1866.

The following documents will show what were the principles Chile upheld as the basis of her claims concerning her frontier, upon the crest of the Cordillera, in a boundary division which was essentially orographic.

In 1866, Bolivia and Chile signed a boundary Treaty of which Article 1, in its first part, said:—

“The line of demarcation of the boundaries between Chile and Bolivia in the Desert of Atacama shall be in future the parallel of lat. 24° S. from the Pacific coast *to the eastern boundaries of Chile*, so that Chile on the south and Bolivia on the north, shall have the possession and dominion of the territories which extend to the said parallel of lat. 24° S., exercising on them every act of jurisdiction and sovereignty corresponding to the landlord.”

And Article 2:—

“Notwithstanding the territorial division stipulated for in the former article, the Republic of Chile and the Republic of Bolivia shall share equally in the products resulting from the workings of the guano deposits discovered in Mejillones, and in the other deposits of the same fertiliser which may be discovered in the territory comprised between lat. 23° and 25° S., as well as in the export duties levied on minerals from the just-mentioned territories.”

By Article 1 of the same Treaty, it was also settled that the line of demarcation between the two countries should be traced by “a commission of capable persons and experts,” who should fix the dividing line “on the ground.”

Those capable persons and experts were, on the part of Chile, Señor A. Pissis, and on the part of Bolivia, Señor Juan M. Mujia, who, on May 11, 1870, in the port of Taltal, signed a Record in which they show to have determined the boundary in the parallels of 23°, 24° and 25° S. as far as *the Cordillera de los Andes*, recognising as such the chain in which are situated the peaks “Pular,” (“*on the crest of the Andes*”), “Tonar” (“*on the crest of the Andes*”), and “Yuyayaco” (“*on the anticlinal line of the Andes*”).

After the Record became known there arose differences respecting *the eastern boundary of Chile*. The Government of Bolivia was not satisfied with the tracing of it by Señores Pissis and Mujia, considering that the line on the east, to which the Treaty of 1866 referred, ought to have been fixed to the west of the line demarcated by those Experts, since the eastern boundaries of

Chile did not pass beyond this; they claimed that the frontier line ought to be fixed by a line, which having its starting point at the intersection of the anticlinal line of the Andes with the parallel of 25° , falls perpendicularly on the parallel of 23° . The Chilean Government *replied that the eastern boundary of Chile was "the Cordillera de los Andes"*; that, therefore, *the frontier line should run along that Cordillera*; and that they held as correct the demarcating operations which Señor Pissis had carried out. The Chilean Minister for Foreign Affairs, for this reason, said to the Minister Plenipotentiary of Bolivia at Santiago, *that the eastern boundaries of Chile are no other than the Cordillera de los Andes*, and that both Chile and Bolivia, in fulfilling the stipulations of the Treaty, had, through their representatives, fixed that boundary *in the Cordillera*, pointing it out by well-known points and positions. Chile therefore did not accept the new demarcation of limits proposed by Bolivia "*inasmuch as these would change the eastern boundary of the territory.*" These misunderstandings gave rise to the Protocol signed at La Paz in Bolivia, December 5, 1872, by Don Santiago Lindsay, Minister Plenipotentiary of Chile.

In Article 1 of this Protocol it is declared that the eastern boundary of Chile, of which mention is made in Article 1 of the Boundary Treaty of 1866, *is the highest crest of the Andes*, and therefore the dividing line of Chile and Bolivia at lat. 24° S., starting from the Pacific, *goes up to the crest of the Cordillera de los Andes*. In confirmation of that Article the 9th Article, says that that boundary is *in the lofty crest of the great Cordillera de los Andes*.

Señor Lindsay, in communicating the Protocol to his Government, said: "*It is settled that our eastern boundary is the highest crest of the Cordillera de los Andes.*" *

Thus, *the eastern boundary of Chile*, according to her Constitution, her National Hymn, and as understood by the Chilean statesmen, was fixed *in the highest crests of the Andes*. "*It is settled,*" says Mr. Lindsay, Chilean Minister, "*that our eastern boundary is the highest crest of the Cordillera de los Andes.*" There the Argentine Expert has placed the boundary line, and the Survey Commission to be sent by Her Britannic Majesty's Government will see that the Chilean Expert has greatly diverged from *the highest crests of the Andes*, and placed his line in the Pampas of Patagonia, thus claiming for Chile the whole Cordillera

* Communication of Señor Santiago Lindsay, Minister Plenipotentiary of Chile in Bolivia, to the Minister of Foreign Affairs of Chile, dated Santiago, January 2nd, 1873.

including its western and eastern slopes, and also a great part of the territories that have been always known as Argentine.

But there is no necessity to discuss this at present, and the quotations of official evidence bearing on the matter will be continued.

3. THE CHILIAN-BOLIVIAN TREATY OF 1874.

The boundary agreed to in the year 1866 between Chile and Bolivia, was also agreed to in the new Treaty concluded in 1874 between the same countries, of which Article 1 says :—

“The parallel of 24° from the sea to the Cordillera de los Andes, in the *divortium aquarum*, is the boundary between the Republics of Chile and Bolivia.”

This expression, “Cordillera de los Andes, in the *divortium aquarum*,” gave occasion for official declarations, which were considered necessary for the acceptance of the Treaty. The Bolivian Minister of Foreign Affairs, Señor Mariano Baptista, explaining the boundary to Congress, said :—

“There is a great line, or rather a kind of enormous ridge, which runs round the world, starting from Cape Horn, crossing South America, passing Panamá, running along North America, jumping over the Behring Strait, advancing into Asia, and passing into Africa, where it ends at the southernmost cape. The several branches which run off from this central ridge, form different orders of mountain chains, which, in turn, form so many *arcijunious* boundaries. This great chain, which comes from North America, over here takes the name of Rocallosos, Sierra Verde, Sierra Madre, Anahuac and Andes, and marks exactly the *arcijunious* boundaries with which we are now treating with Chile. If a chain of mountains forms the limit, the international law explains and defines its application. Mountain ranges culminate in summits, which are their highest points, or in other places they rise in ridges which are the angles formed at their crests by the opposite slopes, *or else they run through the highest peaks or loftier crests. These peaks, these summits, these loftiest points, these highest angles, constitute the divortia aquarum (or watershed), and geographically, they are defined as part of the chain which separates the waters either intermittent or continually flowing by slopes in opposite directions.*”

“The statements of impassioned newspapers are manifestly illogical,” said Señor Baptista. “One says, ‘All the maps and constitutions of Chile mark as her territory from the sea *as far as the Cordillera*; therefore the boundary cannot be fixed by the *divortia aquarum*, *or in the highest crest of the Andes*, according to the clauses of the Agreement of the 5th, which has been condemned.’ However,” continued Señor Baptista, “the law has decided *that if the Cordillera is indicated without any other explanation, by this expression is to be understood its highest crest, or the divortia aquarum.*”

Notwithstanding such a clear explanation the Bolivian Congress required a corresponding explanation on the part of Chile, and modified the Treaty thus :—

"In Article 1 the declaration will be made that the eastern boundary of Chile is the Western Cordillera de los Andes through its highest crests (cumbres), according to the Report of the Chilean and Bolivian Commissioners' Pissis and Mujia, who determined the peaks of 'Yuyayacu' and Pular."

This Resolution caused the Treaty to be rendered even more intelligible. Minister Baptista addressed a note to the Chilean Minister, sending him said Resolution, which he considered as "a confirmation of, or rather a short commentary on Article 1 of the Treaty." Señor Carlos Walker Martinez, the Chilean Minister, replied in agreement with the interpretation given by the Bolivian Minister to the words, "Cordillera de los Andes in the *divortium aquarum*," affirming that in the Boundary Treaty by the words "Cordillera in its *divortium aquarum*" should be understood the "Cordillera," the lofty crests of the Cordillera AND NOTHING ELSE. The doctrine of international law is expressed in the following terms by Señor Walker Martinez :—

"It is evident that the Cordillera de los Andes, which *from south to north forms the eastern boundary of Chile*, shall continue to be its boundary up to parallel lat. 24° S., and the text of the Treaty is so explicit in its Article 1 on this point that it is not to understand the meaning of words to suppose that '*high crest*' or '*divortium aquarum*' can have any other meaning than that given them by science, language and common sense. In reply to the jealous and suspicious men who have accused Your Excellency of having ceded immense territories of Bolivia by accepting the draft of the first Article, it would be proper to tell them that the REPUBLIC OF CHILE CLAIMS NOTHING MORE THAN TO BE ENCLOSED BETWEEN HER OCEAN AND HER CORDILLERAS TO OBTAIN ALL THAT SHE COVETS, HER PEACE, HER WELL-BEING AND HER PROGRESS.

"A special protocol to explain what I state in the words of this communication appears to me superfluous; in my opinion, it suffices that I should declare, as I do, that MY GOVERNMENT UNDERSTANDS THE EASTERN BOUNDARY IN THE PART OF THE DESERT OF ATACAMA, TO BE THE MOST ELEVATED CRESTS OF THE CORDILLERA AND NOTHING ELSE. I think that this statement is sufficiently clear and will leave no room for doubt." *

This doctrine was again affirmed, before the Bolivian and Chilean Congresses approved the Treaty, by request of the Chilean Minister who wished to determine clearly what should be understood by *eastern boundary of Chile*.

As already said, the Bolivian Congress, in their Decree explanatory of Article 1 of the Treaty, had referred to the *Western Cordillera de los Andes*. This gave rise to some alarm in Chile, and in order to dispel it Señor Walker Martinez insisted upon his previous interpretations in a note to the Bolivian Minister of Foreign Affairs, in which he says:—

* Op. cit., p. 136.

“The clear and brief statement which Your Excellency and the undersigned made in Article 1 of the Treaty, which superseded the former one of the year 1866, and which we signed on August 6 of last year in the city of Sucre, was the result of protracted conferences. We were simply desirous to establish a positive fact, and *our only intention was to acknowledge the highest crests of the Andes, that is to say the divortia aquarum in the Desert of Atacama, as the eastern boundary of Chile.* It did not appear to us possible that the Article could lend itself to any capricious interpretation or error of any kind. Nevertheless, the National Assembly of Bolivia wished to be more precise, and employed the term ‘Western Cordillera de los Andes,’ in Clause No. 3 of its Resolution of November 6, concerning the approbation of that Agreement. From this have resulted different and erroneous interpretations, which it will be desirable to correct. In the note which I had the honour to forward to our Excellency, under the date of November 10, I was quite explicit respecting this question. *I reminded Your Excellency that the limits of Chile in the territory of Atacama were the highest crests of the Andes, that is to say, the divortia aquarum. I did not believe then, and I do not believe now, that the intention of the Bolivian Assembly was to fix these limits by any other line than that fixed by Nature herself, and recognised in former agreements and diplomatic precedents, and about which Your Excellency and myself have always been quite of one mind.*”

The Bolivian Minister replied in the following precise terms to the Chilean Minister :—

“My Government, therefore, understand that the term *divortia aquarum* is taken in the sense given it by ‘science,’ ‘language’ and ‘common sense,’ as Your Excellency expressed in your despatch of November 10, No. 31, which was the reply to the declaration of my Government contained in documents of the said date. The general term ‘Cordillera’ as a boundary *implies its highest crests, and its divortia aquarum*, as the term of lagoon, river, plain, or table-land, without any other qualification, presupposes the boundary line in its centre, or in its *thalweg*. The Cordillera de los Andes having been specified, the boundary line runs through its *highest crests* or its *divortia aquarum*. The Assembly of Bolivia were aware that the Bolivian and Chilean Commissioners had already definitely fixed the points of Yuyayacu and Pular, as leading points of these *highest crests* or *divortia aquarum*.”

Only after the foregoing communications have been exchanged, only after the Congresses of the two nations interested, had acquired the profound belief that the expression “divortia aquarum” did not displace the orographic boundary from its natural position in the superior and highest crest of the prominent Cordillera de los Andes; only after the interpretation of the legal advisers had determined that when the *divortium aquarum* in the orographic regions is spoken of, reference is made to the line which divides the slopes of the chain: only then did they give their acquiescence to the proposed agreement.

4. OTHER OFFICIAL DOCUMENTS.

The simple enunciation of the foregoing quotations makes it clear that previous to the Treaty of 1881 the public men of Chile shared the views of all historians and statesmen, regarding the Andine boundary.

The Cordillera appeared an admirable natural frontier, owing to the many important conditions which it fulfils; whenever writers have referred to it, they have made special mention of the peculiar suitability of the range as a natural defence and for opposing the attempt at territorial aggrandisement by either of the countries which it separates.

The opinion of both the Argentine and Chilean negotiators of the Treaty of 1881, was undoubtedly influenced by the remarkable suitability of the Cordillera to constitute the natural boundary.

Chile raised these arguments when she was treating with the Argentine Republic concerning the boundary line of the Andes, and the records of the Ministry for Foreign Affairs contain a large number of documents, referring to this subject, some of which will be mentioned, when quoting statements in connection with the wording of the Treaty of 1881.

The highest crest has always been the point considered, and the watershed has always been made dependent upon it. A proof that no doubt existed as to this matter is to be found in the communication addressed, in 1873, by the Minister of Foreign Affairs of Chile, to the Minister of the Interior of that country, calling his attention to errors which he thought he discovered in the large map recently published by Señor Pissis,* because of the two ridges which

* "Santiago, 18th August, 1873. I do not consider it to be unnecessary to seriously call your attention to other points in the maps referred to, in which I am of opinion that an error of no less importance has been made. You are not unaware that our eastern frontier with the Argentine Republic has not yet been determined, and that the misunderstanding on this subject has already been apparent between both Governments with reference to certain grazing lands (potreros) situated in the province of Talca, the property of a Señora Jiron, over which both our authorities, and those of Mendoza, have claimed jurisdiction. These opposing claims arise, as you are aware, from the fact that the Cordillera de los Andes frequently divides into two different sections which, in widening out, leave between them valleys and table-lands in which the Chilean Government has exercised jurisdiction over the tribes which inhabit them. Similar claims are put forward by the authorities of the neighbouring Republic.

"It is therefore necessary to decide whether, in these cases, the frontier-line of both countries should be formed by the most eastern or the most western cordons of the Cordillera of the Andes. This being the state of the question, it appears that Señor Pissis has marked the western cordons of the Cordillera, on the maps of Chile, as being the said boundary, depriving us of the places to which I have referred above.

"As these maps were made by Commissions of Engineers appointed and remunerated by the Government,

form the principal chain of the Cordillera in the part referred to in that map, Pissis had marked the western one as the boundary.

In 1871, a map of the Argentine Province of San Juan was published, in which the River de los Patos appears divided by the highest ridge, leaving in the Chilian territory the valley of that name. The region to the west of this ridge was not known to the author of the map, and he, no doubt, imagined that it was the extreme end of the Cordillera. However, the Government of San Juan exercised jurisdiction in the said valley, and as the authorities of the Chilian Province of Aconcagua tried to oppose it, the Argentine Legation in Santiago protested against such pretension, in 1874. Referring to this, Señor Alfonso, Minister of Foreign Affairs, set forth in his Annual Report for 1875, as follows:—

“The principle of international law is well known, according to *which when the boundary of a nation is marked by a Cordillera, the dividing line is the one which runs along the most lofty points thereof, and where the water-divide exists.*”

And he concluded with these words :—

“This is another point which it would be well to decide in a clear and permanent manner, when it may be possible to define the main question of dominion to the southern part of the continent, as it is known *that the same difficulty has arisen already in other sections of the Cordillera*, without any definite solution having been arrived at.”

As will be seen, Chile traced her frontier by the line of the highest crests, and she adhered to this system not only until the signing of the Protocol of 1893, but maintaining her claims to the “Valle de los Patos” after its signature.

It is not only in international documents where the definitions of the Cordillera de los Andes as the eastern boundary of Chile are to be found. Internal Acts may also be brought to mind, and among them the Decree of the Chilian Government, dated September 30, 1869. In this Decree, notwithstanding what has been said about division of waters, the boundary is localised in the highest crest of the Cordillera with the authority derived from Acts emanating from public powers. It says, in the part bearing upon the point:—

“It is approved the following project of arrangement of the sub-delegations and districts of the department of Laja: 19th Sub-delegation *Antuco*. . . . District

and as an official character attaches to them, I have considered it indispensable to make these observations to you, so as to prevent mistakes, if possible, and invalidate the arguments which might, later on, be deduced from these facts in favour of the Argentine Republic.”

No. 8, *Campamento*. The boundary shall be drawn to the north and south by means of two parallel straight lines drawn from west to east, from the point where the rivers Laja and Rucué issue up to the summit of the Cordillera of Pichachen or the Andes; to the east, *with the highest edge of this Cordillera*; and to the west, with the eastern boundary of the above district.”*

The Chilean Minister in Bolivia, Señor Lindsay, wrote forcibly and truthfully in 1872, several passages which the Argentine Republic accepts to-day as the most eloquent expression of her unquestionable rights. It was in the course of boundary discussions, in a document where the value of words are weighed, that the Representative of Chile declared:—

“That which Chile possessed was the territory comprised between the Pacific Ocean and the Cordillera de los Andes, the eastern boundary of this Republic *not only now since her political emancipation, but since a period long before that event*. National and foreign text-books of geography and other works which fix the boundaries of Chile *have uniformly given her as an eastern boundary, the Cordillera de los Andes*. *The different constitutions which have ruled this country have also established that boundary*; two reasons which are assuredly not wanting force in the present case. . . . From these instructions it appears clearly and decisively that each Government *as well as everybody, has considered the Cordillera of the Andes as the eastern boundary of Chile*. . . . Only on September 19 of this last year did the question now pending make its appearance.† *Until this last date, our eastern boundary of the Andes had never been placed in doubt by any person or people*.”

In order to accentuate his idea, the Chilean Minister said in another part:—

“The Chilean Government in notes addressed to Señor Bustillo, at Santiago, by word of mouth and in every manner, has declared that they do not discuss that which bears no discussion, that is, THAT THE EASTERN FRONTIER OF CHILE HAS BEEN AND ALWAYS WILL BE THE HIGHEST CRESTS OF THE CORDILLERA DE LOS ANDES.”

These are the expressions distinctly stated, which the Chilean Plenipotentiary officially used, and they may be applied, at the present juncture, to vindicate the rights of the Argentine Republic, and to justify the Argentine opposition to leaving aside the traditional frontier, respected by centuries.

* Aníbal Echeverría y Reyes, *Geografía política de Chile*; or *Compilation of Laws and Decrees in force as to the creation, boundaries and names of the provinces, departments, sub-delegations and districts of the Republic, 1888–1889*. Santiago, vol. 1, p. 156.

† This was the Chilean-Bolivian question of boundaries. Some Bolivian statesmen pretended that the boundary here referred to by the Treaty of 1866, was to be traced not in the true Cordillera de los Andes but westwards of it.

CHAPTER VI.

Summary—1. INTERSECTION OF THE CORDILLERA DE LOS ANDES BY RIVERS IN THE SOUTH.
2. EXPLORATIONS BY LADRILLERO (1557-1559) AND GARCÍA (1766-1767).
3. EXPEDITIONS OF THE 'ADVENTURE' AND THE 'BEAGLE' (1826-1830).
4. EXPLORATIONS BY COX AND FRICK.
5. EXPLORATIONS BY VIDAL GORMAZ AND SIMPSON.
6. EXPEDITIONS BY THE OFFICERS OF THE CHILIAN GUNBOAT 'MAGALLANES.'
7. RESULTS TO BE DERIVED FROM THESE EXPLORATIONS.

1. INTERSECTION OF THE CORDILLERA DE LOS ANDES BY RIVERS IN THE SOUTH.

TO PROVE that when the Treaty of 1881 was framed, it was a known fact that the Cordillera de los Andes was intersected by rivers, is of paramount importance; because the most important divergences of opinion between the Chilian and Argentine Experts are in connection with the divide of the rivers flowing into the Atlantic and the Pacific.

The Chilian Expert, setting aside altogether the Chilian Constitution which fixes, from north to south, the whole length of the eastern boundary of Chile in the Cordillera de los Andes; and entirely ignoring the Treaty of 1881, which also fixes the Cordillera de los Andes as the boundary between the two nations down to 52° S.; and disregarding all historical and political evidence, tends to remove the boundary from the said Cordillera to the plains of Patagonia.

It is necessary to show to the Tribunal that the Argentine and Chilian Governments, when fixing the boundary in the high crests of the Cordillera, were quite aware that the Cordillera was, in the south, intersected by rivers, which rising in the east, traverse the chain and flow into the Pacific. This fact was known to them, and yet they stated that the boundary should follow the high crests of the Cordillera, from north to south, as far as parallel lat. 52° S., without taking into consideration whether the rivers had their outlet in the Pacific, or in the Atlantic Ocean. If this had been a matter of importance the wording of the Treaty would have been very different and it would have been

necessary, previous to any delimitation, to ascertain carefully which rivers had their outlet in the Atlantic, and which in the Pacific.

The surveys in such cases would necessarily have commenced by the shores of the Atlantic and the Pacific and have followed up the rivers, and there would have been no occasion to make explorations in the Cordillera de los Andes, nor to seek, in the range, the highest crests. It was perfectly well known that several rivers in the south had their sources far from the eastern side of the high crests of the Cordillera de los Andes, as Her Britannic Majesty's Technical Commission will verify when, on the ground, they consider the boundary marks in the Patagonian plains, proposed by the Chilean Expert.

The evidence which goes to prove what the Argentine Government states, will also show that as certain rivers have their rise on the eastern side of the Cordillera de los Andes, and then flow across these mountains to the Pacific Ocean, the eastern slope of the Cordillera was never considered Chilean territory.

2. EXPLORATIONS BY LADRILLERO (1557-1559) AND GARCÍA (1766-1767).

The works of Señores Gay, Pissis, Domeyko, Barros Arana, and others which have been mentioned, do not refer in particular to any of the points of the Cordillera where it appears to be intersected by rivers which take their rise to the east of the said Cordillera. Even if they mention these interesting phenomena none of these authors examined them themselves, and it will be necessary to lay before the Tribunal the authorities upon which they based their statements.

Juan Ladrillero, a Spanish navigator, who sailed along the western coast of Patagonia and the Magellan Straits, between the years 1557 and 1559, was the first explorer who penetrated to the east of the Andes from the Pacific side, through one of the many breaches in the Cordillera. In this memorable voyage he discovered a channel which led him to the one now known as "Canal de las Montañas," in lat. 52° S. He found other narrow channels between high snowy mountains, which constitute in that region the Cordillera de los Andes, and navigating these channels to the west, he arrived at a large sound, bounded on the west by these high mountains, and on the east by some low-lying land,

suitable for the cultivation of wheat, Indian corn, and other grains. There the Cordillera ended, and to all appearance there was nothing but plains to the north-east as far as the Atlantic. Ladrillero could see nothing but plains and fertile land extending to the Atlantic Ocean to the east, but to the Pacific Ocean, to the west, only a vast extent of snowy mountains. On the east, he found another channel up which he sailed for a distance of fifteen leagues.

An account of the voyage of Ladrillero was published in the *Anuario Hidrográfico* of Chile, vol. 6 (Santiago, 1880), with a map drawn by Señor Alejandro Bertrand in the fashion of the cartography of the sixteenth century.

In this account it is correctly stated that the amount of geographical knowledge since accumulated has confirmed the opinion of Ladrillero, who considered this point as the most southern extremity of the chain of mountains forming the Cordillera de los Andes, and the commencement of vast plains which extend towards the Atlantic.

It may be inferred, therefore, that Señor Barros Arana, when, in 1876, he proposed the *divortium aquarum* without referring to the Cordillera de los Andes as the only division between Chile and the Argentine Republic, did so in order to secure for Chile the banks of the channels of the Pacific, which channels he knew extended to the east of the Cordillera. It will be seen further on that this scheme was not accepted, and was modified as regards this region, into the line of *divortium aquarum* of the Cordillera de los Andes, so that there were left to the Argentine Republic several ports on the Pacific waters, to which claim she renounced for political reasons, by the Protocol of 1893, the same in virtue of which she now resists the Chilean pretensions to the Atlantic side of the Cordillera.*

* Juan Ladrillero's Expedition (1557-1559).

P. 480.—“From this island, the channel runs seven leagues S.E. by S. as far as another island (see note 84), the channel then bends N.N.E. for four leagues, where it divides into two channels, one running north between some lofty mountain chains (note 85) and the other E. which we followed for five leagues in the said E. direction; and half-way between these five leagues, on the north side, another channel penetrates, running N.E. (note 86). At the end of these five leagues, we came to a strait which contracted the channel to about a gunshot (note 87), it being very deep and the currents being very strong, more like a mill-stream; these narrows were about half a gunshot in length; after which the channel on the S.W. side, one and a half leagues wide, running W.S.W. (note 88). Another on the S.E. side, two leagues in breadth, ran N. In one of the ranges was a bell-shaped rock; with a harbour at its base (note 89), sheltered from every wind save the

(84) Union Channel and *Ancon sin Salida* Island.

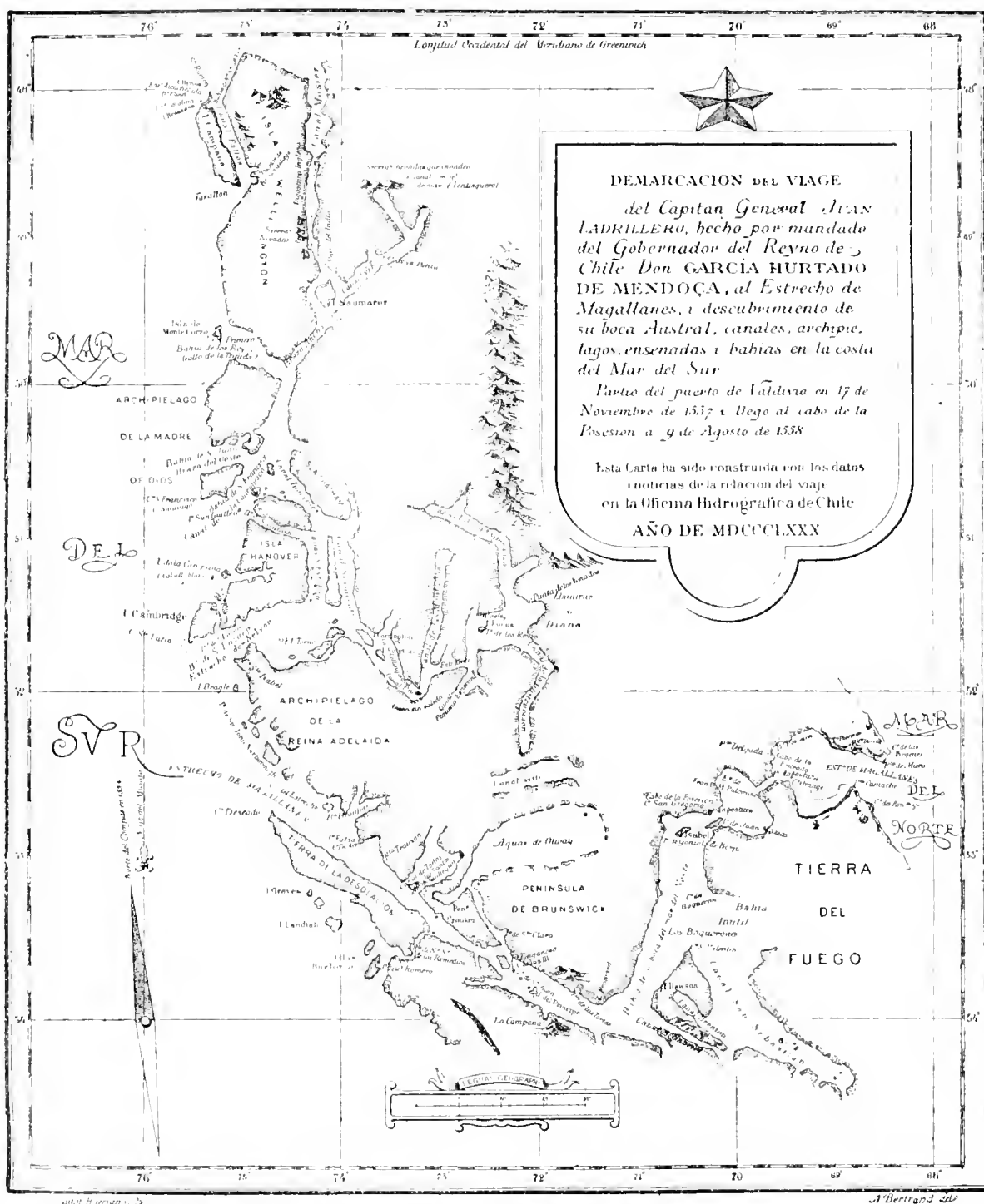
(85) Channel of the Mountains.

(86) These channels have no name; but are shown on the map, the explorer having been most precise in every detail about this part.

(77) Kirke Straits or Narrows.

(88) Little Hope Channel.

(89) The harbour to which Ladrillero refers can be seen on the map at the very first glance.



ALEJANDRO BERTRAND, 1880.

(From Anuario Hidrográfico de Chile, Santiago, vol. 6.)

In the Journey of Father José García to the western coast of Patagonia, in 1766 and 1767, published at Halle in 1809, and reprinted by Señor Barros

N.E. and there is an island in the middle of the channel (note 90), it runs two leagues northward, where the channel then widens; and five leagues further on there is an island (note 91); and the bay is five leagues wide, so that along this channel and bay there are four channels, like the first, which is on the S.W. side (note: This is a copyist's mistake, as this portion is excluded by the following), running E.S.E.; this we followed, it extended six leagues E.S.E. as far as a sandy promontory, where there was a good deal of wind; from there we proceeded S.S.W. for five leagues, when I took the bearings, finding that we were in lat. 53°; from where I made this calculation I could see that the channel went further south for another five leagues, where it seemed to terminate and we turned back (note 92), and I saw that it was not the Strait, we returned to *Isla de los Reyes*—Kings' Island—(note 93) which was three leagues from the entrance to the channel; and I called it by that name as we arrived there on the *Pascua de los Reyes*—Epiphany or Twelfth Day; from there we went N.E. by E. for five leagues and entered another channel which we went up; the country was of good appearance, with plenty of venados (huemules), and a soil which could grow corn, maize and other grain; and here the Cordillera comes to an end, and all the country on the E.N.E. as far as the northern sea, seemed to consist of nothing but plains (note 94); and from the top of the mountain we saw a channel which could be discerned more than fifteen leagues off, running E.N.E. (note 95), and was more than one and a half leagues wide. Continuing our search, we went along the other channel I mentioned, from the said Venados Point, three leagues N.W. by N. and then five leagues N.; at the end of these five leagues, we went a further eight leagues N.W. and one league N. where we encountered a river with a very strong current, which flowed out from some snow-clad mountains; and seeing it was not what we were looking for, although the channel was one and a half leagues wide up to that point, we turned back, and passed along the main channel which we had left a league from there, continuing along it for another three leagues (note 96), where we found another fresh-water river, having a very strong current and situated in great snow-clad mountains. We turned back to follow another channel which we had left, and had advanced four leagues from Venados Point, which also terminates in a similar manner; we went N.E. for four leagues (note 97), and seeing that we could not find the Strait there, nor any outlet for the channel, which seemed to go towards the flat country of which I have spoken, and from which we were not four leagues away, we turned back to Venados Point, where two men with guns killed fifteen venados in an hour; we then made for the *Isla de los Reyes*, traversing the channel, which is six miles wide, where we saw two other channels, one of which we penetrated (note 98) hoping to find a passage, along which we went N.E. and N.N.E. for eighteen leagues, where we found ourselves in a very soundable bay a league in width. The whole of this land is the termination of the *Serrania*

(90) This can be seen marked on the map.

(91) Focus Island, the name given it by Lieut. Skyring, owing to the numerous channels which concentrate there.

(92) Obstruction Channel, along which Ladrillero sailed.

(93) In the confluence of the channels, and facing said island, is the *Bahia de la Pascua*, the name given it by Skyring, 270 years after Ladrillero's expedition. In both cases, the name had a similar origin; the Christian festival recalled by the one being the *Pascua Florida* (Palm Sunday), and by the other the *Pascua de los Reyes* (Epiphany, or Twelfth Day), as those festivals took place on the eve of their arrival in those distant regions.

(94) The lapse of years, perfecting geographical studies, has shown Ladrillero to be right in fixing this place as the southern limit of the chain of mountains which extends towards the Atlantic. The difference in the climate is also correct; its temperature approximates that of the northern regions classified as temperate. The venados are not gamos (fallow deer) as the Spaniards believed, but *huemules* (*Cervus chilensis*), which, like all its tribe, lives indiscriminately in woods, and elevated regions, or in inundated and marshy plains, like the Plains of Diana, which Lieut. J. T. Rogers, of the Chilian Navy, thinks should be called "the swamps of the goddess," owing to their impassable nature. The officer in question traversed by land, in the years 1878 and 1879, the eastern limits of the channels visited by Ladrillero (see the *Anuario Hidrográfico*, vol. 5, and the first part of the present one, vol. 6).

(95) As the text does not mention the position of the channel, we presume it is on the south, and taking the distance (fifteen leagues) into account, it may be inferred to be Skyring Waters.

(96) Last Hope Channel, whose waters turn fresh owing to the rivers it receives at its head, which is flanked by a beautiful glacier. (97) Worsley Passage. (98) The Channel of the Mountains, already mentioned.

(99) During the centuries which elapsed between the *Pascua de los Reyes* in 1558, and Easter 1830, no attempt has been made to find a passage to the Magellan Strait through any of the channels which Ladrillero defines so precisely.

Arana, in the *Anales de la Universidad de Chile* (vol. 38, 1871) and in the *Anuario Hidrográfico de Chile* (vol. 14, 1889), with commentaries, it is stated that the large Mesier Channel "*diverts to the east, and it is believed to intersect the Cordillera, which here is low and broken*;" and further on it is stated that, in the author's opinion, the inlet of Calen communicates with the Straits of Magellan.*

3. EXPEDITIONS OF THE 'ADVENTURE' AND THE 'BEAGLE' (1826-1830).

Although Ladrillero is quite reliable, of still greater value are the results of the surveys made by the English expeditions of the 'Adventure' and the 'Beagle' under the command of Captain Parker King, who visited the coasts of Patagonia between the years 1826 and 1830.

Captain Parker King, in a memorandum communicated to the Royal Geographical Society in 1831 (*Journal*, vol. 1, p. 164) says in reference to the countries visited by Ladrillero:—

from Venados Point and the Isla de los Reyes; it consists entirely of plains as far as the northern sea and is of good appearance; and towards the southern sea is a very great snow-clad Serrania, covered with rocks and forests of oak and cypress trees, and a red, a white and a yellow timber which makes excellent fuel, burning well, the country being rocky, and growing in such a soil it must be good for fuel; and the ground being very good and very cold, it is most essential for the natives owing to the nude state in which they go about."

* P. 24.—"10th day. We came out of the port, and such a strong gale blew from the north, that the mast of the canoe 'San José' was broken, and she was in great danger of foundering, on account of the heavy seas she was shipping. We had travelled about a league, when we sighted three nearly destroyed '*ramaditas*'; we approached, and upon inspection we found therein a pump which had been brought from the wreckage of the English ship which was lost near there in the year 1740, as well as many seal bones, signs, according to those who know, that the genteels had been there at the same time that I was in Ofqui. Thus, St. Javier caused us to rejoice on the day of his anniversary. Further on we found three more '*ramaditas*' in the mouth and the northern point of Mesier Creek, which is distinguished amongst the Indians through their never having been able to find the end of it. It diverts to the east, and it is believed to intersect the Cordillera, which here is low and broken, and this is a matter which deserved to be examined, on account of the great number of inhabitants concerned, and in order to ascertain whether it is a channel which crosses to the North Sea (Atlantic) or a lagoon, and possibly it may communicate with the Bay of San Julian, as the above-mentioned creek lies in the latitude of 48° S."

P. 32.—"Of this Calen tribe there are, in these islands, near Guyaneco, a family called Jorjuip, consisting of forty-seven persons, besides twenty people who are already attached to my mission. The remainder of the tribe live on the coast of the Cordillera, between the lat. 48° and 49° S., and at this place (approximately) the creek or channel called Calen runs to the east, and, by means of it, this tribe have communication with the friendly people called Lecheveles; the horse, the medal, and other things used by Spaniards, have their name in the language of this people; the fact is that if any Spaniards have been lost, it is probable that their descendants are to be found here, and, in my opinion, the inlet of Calen communicates with the Straits of Magellan."

"The termination of Obstruction Sound, is one of the most remarkable features in the geography of this part of South America. In this examination the southern extremity of the Cordillera was ascertained. The eastern shores of the interior channels were found to be low plains, with no hills nor mountains visible in the distance, and such being the feature also of the northern shores of the Otway and Skyring Waters, it is probable that all the country to the east of the sounds is a continued pampa, or plain."

In volume 1 of the account of his voyage (London, 1839) the same Captain Parker King on the Report made by Lieut. Skyring and the mate Kirke, of the 'Beagle,' makes the following remarks upon the expedition to the regions which were explored by the Spanish navigator.

In 1829 Lieut. Skyring succeeded in a first exploration in penetrating to the east of the narrow gorge which, in after years, became known as Kirke Narrow, which is situated, as is well known, to the east of the Cordillera Sarmiento, which forms, in this region, *the crest of the Andes*. Having passed Kirke Narrow,—

P. 263.—"*A clear channel was seen, upwards of two miles wide, running to the N. b. E. for at least eight miles, and then turning directly eastward, between moderately high land. Another channel, nearly a mile and a half wide, trended to the south-east for two or three miles, and then also turned to the eastward. Here they stopped. Lieut. Skyring regretted extremely not being able to prosecute the discovery, and have one more view from the eastern point of the north-east channel, but as only one day's provisions remained, it would have been imprudent to delay his return. It was evident that they had passed through the range of the Cordillera, for to the eastward the country appeared totally different, the highest hill not being above 790 feet.*"

Such an interesting discovery was an inducement to carry out more minute explorations of these places, and such were undertaken in the following year :—

P. 347.—"*After leaving Kirke Narrow on the right hand a wide sound appeared, about nine miles in length; and having traversed it, we turned to the east, through a narrow, intricate channel (White Narrow) obstructed by several small islets, and passed suddenly out into a clear open bay. Our prospect here became wholly different to that which for months before we had daily witnessed. North and south of us were deep bays, while to the east, between two points seven or eight miles apart, our view was unobstructed by land, and we were sanguine in hoping that we had discovered an extensive body of water. There was also a considerable change in the appearance of the country, which no less delighted than astonished us, for so gratifying a prospect had not been seen since leaving Chiloé. Eastward, as I said before, we could perceive no land; to the north-east and south-eastward lay a low, flat country, and the hills in the interior were long, level ranges similar to that near Cape Gregory, while behind us, in every direction westward, rose high, rugged mountains.*"

P. 349.—“This work was soon finished; but I was greatly disappointed, when on the summit of the island (Focus Island), with the view that presented itself to the eastward. The low points before mentioned, beyond which from Easter Bay we could distinguish no land, and between which we expected to make good our course to the south-east, appeared to be connected by a low flat country. An extensive sheet of water was indeed observed to the eastward, yet I could, only from its appearance, conclude that it was a spacious bay.”

P. 352.—“Mr. Kirke returned on the same day as myself, having traced the coast as far as he had been directed, and found the large expanse of Disappointment Bay nearly bounded by a flat, stony beach, and the water so shallow that even his whaleboat could seldom approach the shore within a quarter of a mile, but he had left a small opening in the north-east unexplored which as our last hope, I thought it necessary to examine, and he went for that purpose the next morning.”

P. 353.—“Late on the 21st, Mr. Kirke arrived. The opening in the north-east (Last Hope Inlet) had been traced for nearly thirty miles from the entrance, first to the north east and then to the W.N.W., till it was closed by high land far to the northward of Worsley Bay.”

P. 354.—“Of this place Mr. Kirke says: ‘At the commencement of the north-east sound, there is low land, which extends about thirteen miles up its shores. The entrance is three or four miles wide; but five miles up, the inlet is contracted to about half a mile in width, by a shoal connecting three islets with the western shore. . . .’

“Beyond this island the face of the country begins to alter from low to mountainous land, with long flats in the valleys, and the sound also changes its course more to the north-west. Near a high bluff on the eastern shore, eight miles farther up the sound, the land becomes higher and covered with snow, yet there are still a few level patches between the mountains. From this bluff the sound trends about a point more westerly for five or six miles, to a place where there is a small inlet, on the left, between two snow-covered mountainous ridges. The water there was changed to a clayey colour, and had a brackish taste. Continuing our course for two miles, I found a large expanse of water, the north end of which was limited by low land, backed by high, snowy mountains in the distance. Its southern extreme terminated at the foot of high mountains, also covered with snow; and had a large run of water from a glacier on the western side. . . .’* ”

P. 355.—“I endeavoured to cross the isthmus where Lieut. Skyring had seen water from Focus Island near Easter Bay, and first attempted it by the course of a fresh-water river, at the head of the bay, but I found the country so thickly covered with stunted wood, about eight feet high and exceedingly prickly, that I lost my way twice, and returned to the shore; I tried again, however, about half a mile more to the eastward, and at last got to a high part of the land. When there, and mounted on another man’s shoulders, I could scarcely see above the trees (which at the roots were not thicker than a man’s wrist): there was evidently a large expanse of water, but I could not

* This refers to the north-eastern extremity of Last Hope Inlet, and to the valley which apparently stretches as far as Mount Paine, but which in reality contains the network of lakes, of which the principal is Lake Maravilla.

distinguish much of it. I think it probable that it is fresh, as the river, fifty yards wide, is rapid and appears to run out of it. There is not any high land in the neighbourhood, whence such a run of fresh water could be supplied.' * *

* Narrative of the Surveying Voyages of H.M.S. 'Adventure' and 'Beagle' between the years 1826 and 1836, 3 vols., London, 1839.

Vol. 1, p. 261.—“The following morning was fine, and the ‘Adelaide’ moved out of Smyth Channel, the survey of which was completed very satisfactorily, although their progress was slow owing to constant northerly winds.

“By towing the ‘Adelaide’ during tedious calms they reached Montague Bay in the evening, and next day anchored in Relief Harbour, on the south-west side of Vancouver Island. As it was evident that the “Ancon Sin Salida” was within Piazz and Ceres Islands, up the west coasts of which they had passed, Lieut. Skyring left the schooner moored in Relief Harbour and proceeded, on August 4, to the southward, in a whale-boat with Mr. Kirke, but he took no more than a week’s provisions, that time being all he could devote to this exploration.

“The 4th, 5th and 6th Lieut. Skyring employed in pulling or sailing to the southward and eastward, through winding and intricate passages, although strong winds and much heavy rain annoyed him and impeded his progress.

“On the 7th the weather was much more favourable than it had lately been. The boat pulled and sailed to the southward, and at noon Lieut. Skyring ascended a height, having on each side of it a deep opening, but he was disappointed in the view; and after taking bearings pulled round the adjacent bights, one of which was exactly opposite Artist Bay in Smyth Channel, and so near it that the two waters were only separated by a few hundred yards; the other, eastward of the height, was large, and closed at the bottom by very low lands. It was directly supposed to be the “Ancon Sin Salida,” but Sarmiento’s description, and the chart compiled by Burney were insufficient to enable them to decide with any degree of certainty. After looking round this bay they continued to the eastward and passed a point beyond which there was apparently a wide channel; having run about six miles down it without discovering any termination, they hauled their boat up on the beach for the night.

“On the 8th two canoes were noticed on the west shore, but seeing strangers the natives, apparently much frightened, all landed except an old man, and taking with them what they most valued, hid themselves among the brushwood, leaving their canoes fastened to the sea-weed. By some Fuegian words of invitation the men were, however, induced to approach the traffic, receiving for their otter skins whatever could be spared. In appearance and manner these Indians were exactly similar to the Fuegians, and by their canoes only, which were built of planks, could they be distinguished as belonging to another tribe.

“After leaving the natives, the boat passed Cape Earnest, and Lieut. Skyring observed a wide channel leading north and then N.N.W. (1) also another opening to the eastward. The wind being easterly, he ran some distance to the northward to gain more knowledge of the first inlet, and having gone ten or twelve miles from Cape Earnest and observing the opening for eight miles beyond to be as wide as where they then were, he concluded it to be a channel, or else a deep sound terminated by low land, for there was evidently a division in the mountains such as to justify this belief. Returning, they entered the smaller opening to the eastward, and were almost assured of its being a channel, for when they were between the points many porpoises and seals were observed, and a tide was found setting westward at the rate of two knots. At dark they hauled their boat on the beach of an excellent bay, at the north side of the narrow reach, and secured her for the night.

“On the 9th, shortly after daylight, they set out in a north-east direction to ascertain the truth of their

(1) “Here is certainly the Ancon Sin Salida of Sarmiento, whose journal describes the inlet as terminating in a cove to the north, p. 142. The mountain of Año Nuevo cannot be mistaken; indeed the whole of the coast is so well described by the ancient mariner, that we have little difficulty in determining the greater number of places he visited. In all cases we have, of course, preserved his names. The chart compiled by Admiral Burney is a remarkable instance of the care which that author took in arranging it, and how ingeniously and correctly he has displayed his judgment; it is also a proof that our favourite old voyager, Sarmiento, was at least correct in his descriptions, although he appears to have been quite ignorant of the variation of the compass.” (See Burney Coll. Voyages, p. 31; and Sarmiento, p. 162.)

The channel, fifteen leagues long, described by Ladrillero corresponds with the large expanse of water seen by Kirke, in 1831, to the east of the mountains in the Diana Plains, and which is the Lake Balmaceda, shown in the map of the Argentine Expert.

supposition, and before noon knew, beyond a doubt, that they were correct in their belief, being in the narrows of a channel before unknown, that had eluded Sarmiento's notice. These narrows which Lieut. Skyring felt assured would lead to a large opening were upwards of three miles in length, and generally about one-third of a mile in breadth. A strong tide took the boat through, and at the north-eastern extremity, where the narrows were reduced to 400 yards in width, the water, although a neap tide, rushed at the rate of four knots, forming whirling eddies, which were carefully avoided by Lieut. Skyring. At spring-tide, the strength of these rapids would probably not be less than seven knots.

"Having passed through them, a clear channel was seen, upwards of two miles wide, running to the N. b. E. for at least eight miles and then turning directly eastward, between moderately high land. Another channel, nearly a mile and a half wide, trended to the south-east for two or three miles, and then also turned to the eastward. Here they stopped. Lieut. Skyring regretted extremely not being able to prosecute the discovery and have one more view from the eastern point of the north-east channel, but as only one day's provisions remained, it would have been imprudent to delay his return. *It was evident that they had passed through the range of the Cordilleras*, for to the eastward the country appeared totally different, the highest hill not being above 700 feet. The opening to the north-east was thought to communicate with the waters lately discovered by Captain Fitz Roy. The latitude was obtained on Point Return, and in the afternoon, reluctantly but anxiously, they retraced their way, and passed that night at their former quarters in Whale-boat Bay. On the 10th at daylight, they proceeded on their return."

P. 329.—"Favoured with fine weather, they were unable to land on the north side of Xavier Island, to improve the former survey; and in the evening anchored in Xavier Bay, where they remained four days; during which, Jesuit Sound was explored, and found to terminate in two narrow inlets. Being a leewardly opening, it is unfit for any vessel to enter.

"The name Jesuit Sound, and those of the two inlets at the bottom, Benito and Julian, are memorials of the missionaries, who, in the expedition of 1778, entered and explored it.* (Agueros, p. 232.)

"The 'Adelaide' anchored the next night in Ygnacio Bay, at the south end of Xavier Island, which Lieut. Skyring recommends for small vessels: the depth of water being six or eight fathoms, and the anchorage well sheltered from the wind.

"On the 31st, they anchored under the Hazard Islands, in the channel's mouth: 'preparatory,' writes Lieut. Skyring, 'to commencing new work with the new year: for since entering the gulf, except while examining the San Tadeo, we had followed the 'Beagle's' track, and only completed what she left unfinished; but from this place all would be new. This was the last wild anchorage she had taken; and although now fixed in the best situation, and in the height of summer, we found our position almost as dangerous as hers.'

"Early on January 1st, 1830, Mr. Kirke went in a whale-boat to examine the openings, at the mouth of which we had anchored: he returned on the 9th having traced to the end, all which had the least appearance of being channels. The two largest, the south and the east, penetrated into the Cordillera for thirty miles. All these inlets are narrow but deep arms of the sea, running between ranges of very steep hills: their sides affording not the least shelter, even for a boat, and apparently deserted, for neither seal, nor birds of any kind were seen, nor were there even mussels on the rocks.

"Mr. Kirke, in his report, says, 'The three northernmost of the inlets of the channel's mouth end with high land on each side, and low sandy beaches at the head, beyond which there rises a ridge of high mountains, about two miles from the beach. The south-east inlets end in rivers rushing down from the mountains, and a rocky shore: not the smallest shelter could I find, even for the boat. Two days and nights

* "Mr. Kirke, who examined them, says, 'There are two openings opposite Xavier Island, on the main land; the northernmost runs through high land, and is terminated by a low sandy beach, with a river in the middle, running from a large glacier; the southern inlet is ended by high mountainous land.'

4. EXPLORATIONS BY COX AND FRICK.

An interval of several years elapsed between the hydrographic explorations of the 'Adventure' and the 'Beagle,' and those carried out by the Government of

I was forced to keep her hauled up on a rock, just about high-water mark, in a strong gale, while the williwaws were so violent that we were all obliged to add our weight to that of the boat, to prevent her from being blown off: and twice we were washed out of our resting places on the beach, by the night tide rising about fifteen or sixteen inches above that of the day.

"This opening in the coast is noticed by the pilot Machado (Agueros, p. 210), but by whom the name Channel's Mouth was given does not appear. It is by no means descriptive of what it has been proved to be; but as Lieut. Skyring thought that a change in the name would not answer any good purpose, he very properly left it unaltered."

P. 339.—"On the 12th, in full anticipation of making some interesting discovery, we sailed into the 'Canal San Andres,' anchoring in the afternoon in Expectation Bay, where we remained until the 15th. During that time, Mr. Kirke was employed examining the different openings, and tracing this supposed channel farther. At his return, he said that he had found a termination to every opening, even to that in which we then were, which he had previously thought to be a channel. Like the rest, it extended only to the base of the snowy Cordillera, and then was suddenly closed by immense glaciers.

"This information caused great disappointment, as all hope of passing through the Cordillera, thus far northward, was now given up; and I was fearful we should be delayed many more days before we could extricate ourselves from this (as we then supposed) false channel. We were many miles within the entrance; in that distance there were no anchorages, and the wind being generally from the westward, I anticipated much labour before we could effect our return; but the very next day we were so fortunate as to have a slant of fair wind, by which we cleared this opening, and a second time entered Concepcion Strait."

P. 347.—"On the 5th we got clear of this bad and leewardly anchorage, the wind being more to the north-west, but we had still such very squally weather, with rain, that it was a work of several hours to beat to Whale-boat Bay, where we moored in the evening, and prepared for examining the coast with our boats, both to the east and west. Before leaving Leeward Bay, a round of angles was taken from high ground north of the anchorage, and it was satisfactory to reflect that the Ancon Sin Salida was traced far more correctly than could be done in our former visit. There was constant rain and squally weather all the morning, and only in the latter part of the day could any work be performed in the boats. On the following morning Mr. Kirke went to trace the Canal of the Mountains, and I rejoice to say that I was again able to assist in the boat service, and went to examine some openings. After leaving Kirke Narrow on the right hand a wide sound appeared, about nine miles in length; and having traversed it, we turned to the east, through a narrow intricate channel (White Narrow), obstructed by several small islets, and passed suddenly out into a clear open bay. Our prospect here became wholly different to that which for months before we had daily witnessed. North and south of us were deep bays, while to the east between two points seven or eight miles apart, our view was unobstructed by land, and we were sanguine in hoping that we had discovered an extensive body of water. There was also a considerable change in the appearance of the country, which no less delighted than astonished us; for so gratifying a prospect had not been seen since leaving Chiloe. Eastward, as I said before, we could perceive no land; to the north-east and south-eastward lay a low flat country, and the hills in the interior were long level ranges similar to that near Cape Gregory, while behind us, in every direction westward, rose high rugged mountains. I fully believed that our course hereafter would be in open water, along the shores of a low country, and that we had taken leave of narrow straits, enclosed by snow-capped mountains; the only difficulty to be now overcome was, I imagined, that of getting the vessel safely through the Kirke Narrow; which, hazardous as I thought the pass, was preferable to the intricate White Narrow, through which we had just passed. Such were my expectations; and with so noble

Chile on the western coast of Patagonia, and during this interval, reports of the existence of rivers, flowing from the east and intersecting the Cordillera, were only received from sealers and wood-cutters.

a prospect in view, I hastened to look for anchorage for the schooner, which I succeeded in finding at a place named by me Easter Bay, and returned on board the next day through Kirke Narrow. Mr. Kirke employed three days about his work, having traced the inlet, which trended northward from Cape Grey for nearly eleven leagues. He found that it was bordered on each side by a steep range of mountains, broken here and there by deep ravines, which were filled with frozen snow, and surmounted by extensive glaciers, whence huge avalanches were continually falling. The western side of this canal is formed by the southern termination of the Andes. At the northern end are two bays, with sandy beaches, backed by low land, which however, rise gradually to high peaked mountains, distant about two miles.

"Early on Easter Tuesday we left Whale-boat Bay, and proceeded towards the Kirke Narrow. We had been unvarying in watching and trying the strength of the tides during our stay; but the observations never accorded with those in the narrow, and our calculations this morning, after all the trouble we had taken, were found to be erroneous. On approaching the place we met a stream of tide setting to the south-west between two and three knots; the wind was light; we sometimes gained ground—at others were forced back by the strength of the tide—and thus kept hovering near the entrance until eleven o'clock; when the tide slackened and we neared the eastern end, which is by far the narrowest part, and where, I apprehended, every exertion would be required to clear the rocks: but fortunately it was at the moment of slack water—we passed through easily, and our anticipated difficulty vanished. This eastern entrance is narrowed by two islands, which contract the width at one part to 150 yards. When clear of this passage, Point Return, Point Desire and Easter Bay were in sight, and we found ourselves in a channel much wider than those to which we had been lately accustomed. To the south was a deep sound, apparently branching in different directions between high land, but our principal object was the low country to the north-east, and through this we were so sanguine as to make sure of finding a passage. In the evening we anchored in Easter Bay, and moored the schooner in four and six fathoms, over a muddy bottom.

"Next morning (12th) the boats were prepared for going away to gain a better knowledge of the country around, to find out the best anchorage, and to become acquainted with some of the many advantages that, from the prospect before us, we considered ourselves sure of experiencing. Mr. Kirke went to examine Worsley Sound, and he was desired to examine every opening as he proceeded eastward. As soon as he was gone, I set about measuring a base between Easter Bay and Poens Island, which, being of moderate height, appeared to be a favourable position for extending the triangulation. This work was soon finished, but I was greatly disappointed, when on the summit of the island, with the view that presented itself to the eastward. The low points before mentioned, beyond which, from Easter Bay, we could distinguish no land, and between which we expected to make good our course to the south-east, appeared to be connected by a low flat country. An extensive sheet of water was indeed observed to the eastward, yet I could only from its appearance, conclude that it was a spacious bay.

"My attention was next drawn to the southward, in which direction to the east of Woolley Peninsula, appeared a wide and deep opening, and this I determined to explore on the morrow, for it was now the only course likely to lead me to Fitz Roy Passage, where it became every day more indispensable that we should arrive, since our provisions were getting short. At my return on board, I learned from Mr. Kirke that he had examined the greater part of Worsley Sound, whose eastern shore formed a line of coast almost connected with that of the bight before us, to which the name of 'Disappointment Bay' was given.

"It was arranged that he should proceed from his last point, and carefully trace the shore of Disappointment Bay to the eastern headland of the southern opening, down which it was my intention to proceed. With these objects in view, we left the schooner next morning. A fair wind soon brought me to the entrance, where I landed to take bearings on the west side, and arrived at the promontory of 'Hope' by noon. There I ascended to the summit of the hills, but found them so thickly wooded that my anticipated view of the land was almost intercepted, and the angles taken were in consequence very limited.

"At this promontory the course of the channel trends slightly to the eastward, and its direction is

However, on the north, explorers had succeeded in penetrating the Cordillera. From the Chilian side, Messrs. Hess and Fonk had advanced

afterwards to the S.S.E., being open and clear for eight or ten miles, when low land stretching across from the west side intercepts the view. In passing to the southward, I landed frequently to continue the angles, and hauled up at the close of day in Rara Avis Bay, still doubtful of the nature of the opening.

"Next morning, passing Point Intervene, we pulled into an extensive reach, and having landed to take bearings, on the east side near Cape Thomas, I proceeded in hopes that beyond the next point some better prospect would be gained. On arriving there, however, my expectations were instantly checked by a bold rising shore, continuing uninterruptedly as far as the Oliver Islands, which we passed soon afterwards."

"The width of the channel between the Oliver Islands and the northern shore is not more than a mile; but it afterwards increases, and turns sharply, first to the west and then S.S.W. In the west reach there are many small islands, and the high ranges on both sides being detached from each other, gave me yet some hopes of finding a passage between them. Proceeding in the afternoon, a bight appeared to the S.S.E. about two miles to the westward of Cape Up-an'-down, which was examined, although there was no prospect of meeting with success by tracing it, and in it were found two small passages leading to the south-east suitable only for boats. We ran down the largest, and a mile within the entrance were embayed. At the bottom of this bight the land was low, and I tried to get on an eminence that I might command a view to the south-east, but was always impeded by an impervious wood. I observed, however, distant high land in that direction, and could see a sheet of water, about six miles from me; but whether it was a lagoon, or a part of the Skyring Water, was doubtful. I could not, at this prospect, rejoice as Magalhaens did, when he first saw the Pacific, for my situation, I began to think, resembled that of Sterne's starling.

"Keeping along the south shore, until late in the evening, we gained the west end of this reach, and finding no shelter for the boat, crossed to the broken land on the west side, and passed that night in Hewitt Harbour.

"On the following morning, we pursued our course to the S.S.W., and at eleven o'clock reached the extremity of this extensive sound. All our suspense was then removed and all our hopes destroyed; for the closing shores formed but a small bay in the south-west, and high land encircled every part without leaving an opening.

"Throughout the examination of this sound, we did not distinguish any decided stream of tide, and the rise and fall did not appear to have ever exceeded a foot; that there was a slight tidal movement of the water seemed evident, from the streams of foam coming from the cascades; and also from the fallen leaves which were borne on the water from the shores of the bays in long lines; but signs like these are indicative of there being no strength of tide; I have frequently noticed such appearances in large sounds or inlets, but never in any channel where there was a current.

"The bays between Hope Promontory and Point Intervene are frequented by immense numbers of black-necked swans (*Anser nigricollis*); hundreds were seen together; they appeared not at all wild when we first passed; but on our return, there was no approaching them within musket-shot. Many ducks and coots were also observed. On a rock, near the Oliver Islands, was a small 'rookery' of hair seal; and in our progress down the sound, we passed some few shags and divers. This is the enumeration of all we saw, and these few species seem to possess, undisturbed, this Obstruction Sound; for we neither observed any wigwams, nor saw any traces of inhabitants.

"Having no interest in remaining, after some necessary angles were taken on Meta Islet, we commenced our return; and, with a fair wind, made good progress, landing only where it was necessary for angles, and reached the vessel on the evening of the next day (16th). I have fully stated the examination of this sound and have been perhaps, unnecessarily particular and diffuse; but I think that when its near approach to the Skyring Waters is known by others, it will be considered very singular that no communication exists between them. To every one on board the 'Adelaide' it was a great disappointment. The only inlet now remaining to be explored was through the S.S.E. opening, east of Point Return; which, on the 18th, I went to examine. Mr. Kirke returned on the same day as myself, having traced the coast as far as he had been directed, and found the large expanse of Disappointment Bay nearly bounded by a flat stony beach; and the water so shallow, that even his whale-boat could seldom approach the shore within a quarter of a mile; but he had

over the lake of Todos los Santos as far as Nahuel-Hnapi: and the Chilean Engineer, Señor Guillermo Cox, crossing the same region, had returned to

left a small opening in the north-east unexplored, which, as our last hope, I thought it necessary to examine; and he went for that purpose the next morning. Situated as we were, we had great reason to be very earnest in the search for a passage; and I think that no channel into the Skyring Water, however small and intricate, would have been left unattempted at this crisis. During the vessel's continuance in Easter Bay, the men who remained on board were employed in clearing the hold, and completing wood and water to the utmost, in order that we might not be delayed at any anchorage after our departure thence.

"On the 18th I went in a boat down the opening east of Point Return, and by noon reached Virginia Island. Two miles to the southward the channel branches to the south-east and to the south-west; I followed the latter branch, landing where necessary to continue the angles, and arrived in the evening at the extremity, which was closed by low land; in the middle was a wide and rapid stream. The shot of a deer was seen along the margin of the shore. Next day we proceeded down the south-east branch to the centre island, thence steered towards an opening that appeared in the south-west, and, passing through a narrow winding passage, entered a large bay, which was closed at the bottom by low land, similarly to the branch examined yesterday. Only an opening to the north-east now remained to be explored; but night coming on, we hauled up in Tranquil Bay, near the northern extremity. The north-east opening was found to trend eastward for three miles, and then turn to the south-east, forming an extensive bay, whose shores were encircled by low land, and only separated from Obstruction Sound by an isthmus two miles broad. Our search being concluded, I hastened back, and arrived on board the schooner late in the evening. Finding Mr. Kirke had not returned, I still entertained some little hope, and the vessel was prepared to move either one way or the other as soon as he came back.

"Late on the 21st Mr. Kirke arrived. The opening in the north-east had been traced for nearly thirty miles from the entrance, first to the north-east, and then to the W.N.W. till it was closed by high land far to the northward of Worsley Bay. Many deer were seen on the plains eastward of the inlet, and some were shot at but escaped. Swans, ducks and coots had been killed in such numbers that on their return all the schooner's crew were plentifully supplied. Of this place Mr. Kirke says: 'At the commencement of the north-east sound there is low land, which extends about thirteen miles up its shores. The entrance is three or four miles wide; but, five miles up, the inlet is contracted to about half a mile in width by a shoal connecting three islets with the western shore. These islets were literally surrounded by black-necked swans, mixed with a few which had black-tipped wings: the male of the latter has a peculiar note which sounds like "Ken Kank," but the female only sounds "Kank."' "

"A few coots were shot in this neighbourhood, out of an immense quantity seen. In each of two flocks I think, there must have been upwards of a thousand.

"From these islets the sound trends nearly north for seven or eight miles, when it is again narrowed by an island, on each side of which there is a narrow passage for a vessel; but the eastern one is the best. The few bays near here are fit for small vessels only.

"Beyond this island the face of the country begins to alter from low to mountainous land, with long flats in the valleys, and the sound also changes its course more to the N.W. Near a high bluff on the eastern shore, eight miles further up the sound, the land becomes higher and covered with snow; yet there are still a few level patches between the mountains. From this bluff the sound trends about a point more westerly for five or six miles, to a place where there is a small inlet, on the left, between two snow-covered, mountainous ridges. The water there was changed to a clayey-colour, and had a brackish taste. Continuing our course for two miles, I found a large expanse of water, the north end of which was limited by low land, backed by high snowy mountains in the distance; its southern extreme terminated at the foot of high mountains, also covered with snow; and had a large run of water from a glacier on the western side. In returning we saw some deer on the eastern shore of the low land, between the islands of the second reach, but could not get within gun-shot: they appeared to be of a dark colour, and fully as large as a guanaco. Some of our men thought they could distinguish small straight horns, but I could not myself see them. I endeavoured to cross the isthmus, where Lieut. Skyring had seen water from Focus Island, near Easter Bay, and first attempted it by the course of a fresh-water river, at the head of the bay; but I found the country so thickly covered with stunted wood, about eight feet high, and exceedingly prickly, that I lost

Chile by the Ipela Ridge Pass, near Lake Lacar. In the report of this latter explorer, communicated to the Royal Geographical Society, in 1864, by Sir Woodbine Parish, the following passage appears:—

“Soon after we found ourselves fairly in the Cordillera, and passing the Cerro Trumbal, wended our way along the northern shores of the Lake Lacar (the waters of which run towards the Pacific) where we established our bivouac for the night. (This lake is 1749 feet above the sea, and fifteen or sixteen miles in length, by three or four wide).

“*In this part of the Cordillera of the Andes* the ‘linea divisoria’ or parting of the waters, leaving its general direction north and south, makes a great bend or inflection to the eastward, of nearly fifty miles, with a remarkable depression, encircling the great Lake of Lacar, which although thus in appearance situated on the eastern side of the range in reality discharges its waters into the Pacific. *Nevertheless, its eastern extremity is not more than twelve or fifteen miles from the sources of some of the tributaries of the Atlantic.* The Lake of Lacar is united with the Lake of Pihueico, which latter is drained by the river Callitue, which falls into the Shoshuenco from the north. Both these run together into the Lake of Reñihue, the drain (outlet) of which is the River of Valdivia. It is stated upon undoubted authority that three Indians, who had crossed the Andes from Valdivia, finding upon their return the passes blocked by snow, managed to reach on horseback the Lake of Pihueico, where, building a canoe, they passed down the river Callitue into the Lake of Reñihue to the astonishment of the people of Valdivia, who at first would hardly believe in the possibility of opening such a communication.”

At about the same time Don Guillermo Frick, who resided at Valdivia, and who was much interested in the reports he had received with regard to a fluvial pass through the Cordillera de los Andes from the “Pampas of Buenos Aires” to the city of Valdivia, determined to ascertain for himself the veracity of these reports.

my way twice, and returned to the shore; I tried again, however, about half a mile more to the eastward, and at last got to a high part of the land. When there, and mounted on another man's shoulders, I could scarcely see above the trees (which, at the roots, were not thicker than a man's wrist): there was evidently a large expanse of water, but I could not distinguish much of it. I think it probable that it is fresh, as the river, fifty yards wide, is rapid, and appears to run out of it. There is not any high land in the neighbourhood, whence such a run of fresh water could be supplied.

“‘I saw numbers of deer tracks about this place, and the boat's crew observed three deer similar to those above-mentioned.’ (Kirke, M.S.)

“We weighed on the 22nd, and towed out of Easter Bay, with the hope of repassing Kirke Narrow; but shortly afterwards so dense a fog arose, that we could distinguish no land, and were unable to profit by the advantage of a light fair wind, with otherwise favourable weather. In the afternoon, when it cleared up a little, we anchored in Fog Bay, on the west side of the channel, about three miles from Kirke Narrow.”

* Expedition across the Southern Andes of Chile, with the object of opening a new line of communication from the Pacific to the Atlantic Ocean, by the lake of Nahuel-Huapi, and the rivers Limay and Negro, by Don Guillermo Cox, of Chile. (Translated from the Spanish and communicated by Sir Woodbine Parish, K.C.H., F.R.S., to the Royal Geographical Society, 1864).

The account he wrote,* upon his return from his journey, of which the most important part is hereinafter transcribed, leaves no room for doubt that Lake Lacar is enclosed to the east of the Cordillera, and the map, by which the account is accompanied, shows correctly the watershed across the same:—

P. 47.—“For some years there were vague reports in circulation that the Valdivia, or Callecalle river, rises in the Pampas of Buenos Aires; once there was mention of an attempt which Herr Wilhelm Döll wished to make, to sail through the Cordillera; another time a short communication was made by Jeronimo Agüero respecting the Lake of Riñihue—(whence flows our Valdivia river)—and the conjectured mineral wealth of that region, a communication including also the following statement regarding the water-connection with the other side: ‘The lake, besides, has not yet been navigated by civilised persons. It is known that, by one of the two rivers emptying into it, it is possible to go as far as Panguipulli, but the experiment has yet to be made whether it is possible to navigate the other river as far as Neltume Lake, and thence by another river reach Argentine territory, as natives of those districts are said to have done.’

“*Although at the first glance, it seems very improbable that a river cutting through the Cordillera could flow from the Pampas of Buenos Aires to the Pacific, still we did not regard it as fabulous, for, besides the fact that the level of the Pampas at the foot of the Cordillera is much higher than that of the plains on the Chilian side, we already knew of another river (the Huampoe, falling into the Villa Rica Lake), which with some certainty, or at least probability, rises in the Pampas, and is navigable, if not over its whole course, at least for several leagues.*”

P. 56.—“What I could learn further concerning the water connection between Riñihue Lake and the Pampas, I set down here. In an inquiry which the judge of Quinchilca arranged with Pascual Amoyao, the latter acknowledged that the Indians went in a canoe from Riñihue to the Pampas, that there was only a narrow passage between rocks, but that one could get through; that they, the Indians, had kept it secret, since, if once a Spaniard passed that way, all would wish to take this route on account of its great convenience.

“Julian Arango had informed me that Canin Amoyao, an Indian of Riñihue (not of Panguipulli), and travelling companion of the Cazique Patiño, was in Valdivia with his brother, Sebastian Arango. I hoped to hear from Canin the confirmation of the tidings given by Ovalle and Valverde, but he was not disposed for this, and besides, he understood and spoke Spanish badly, or at least acted as if he did not understand me. So he only acknowledged that, with the deceased Paul Patiño, he had made excursions into the Pampas for half a year and had gone as far as the Limap river, i.e. the river Negro; in returning they had not been able to cross by the pass of Ranco on account of the snow, and had held on their way to the Lake of Nontue where they found Cancho. Under his guidance they had gone on foot, cutting their way through Quila and Collhue brushwood, always along the bank of the river which from the Nontue Lake flows into Lake Neltume, and from this

* Der Riñihue—See in Chile und die tiefe Passenkung der Andes bei demselben, von Wilhelm Frick (mit Karte, s. Tafel 3). Mittheilungen aus J. Perthes' geographischer Anstalt, etc., von Dr. A. Petermann, Gotha, 1864, pp. 47–59.

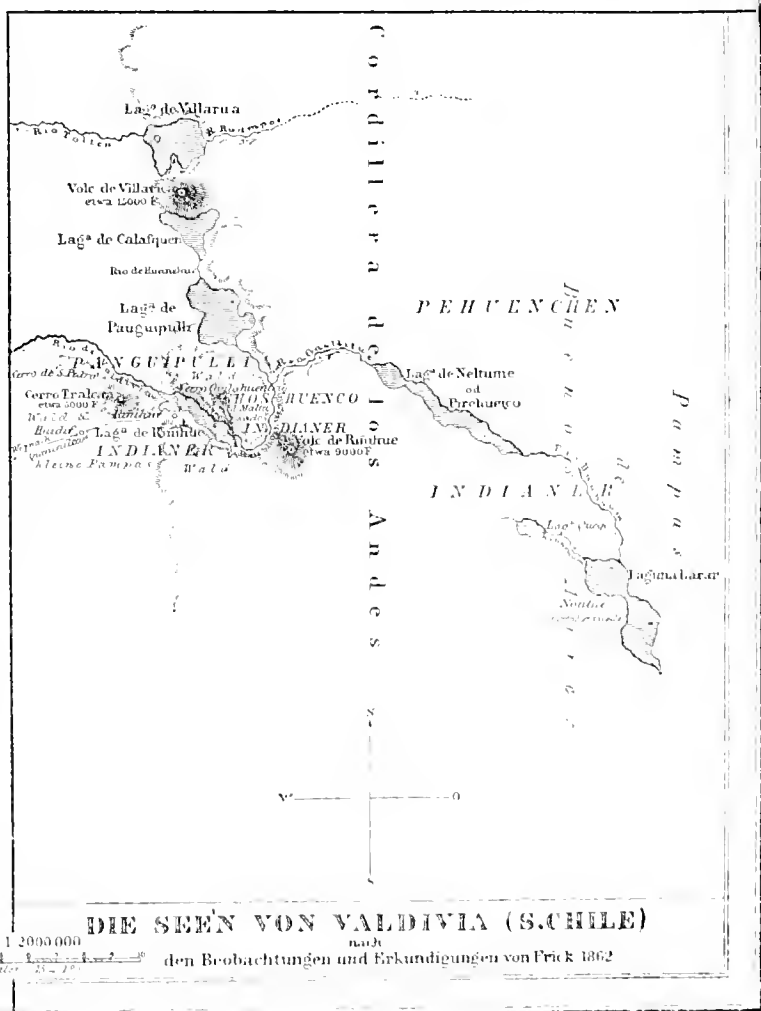
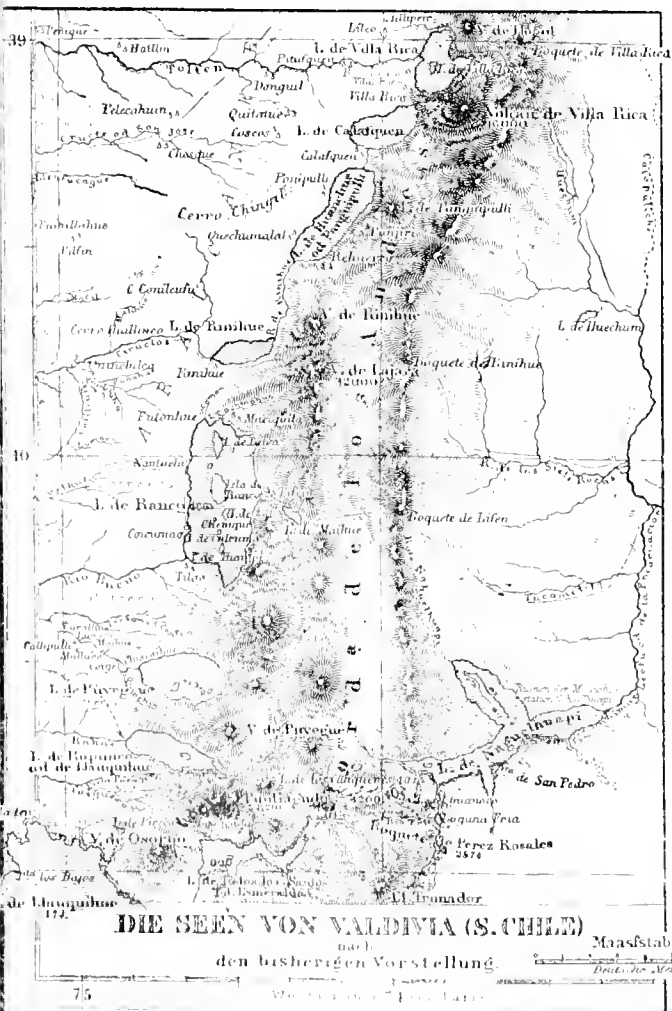
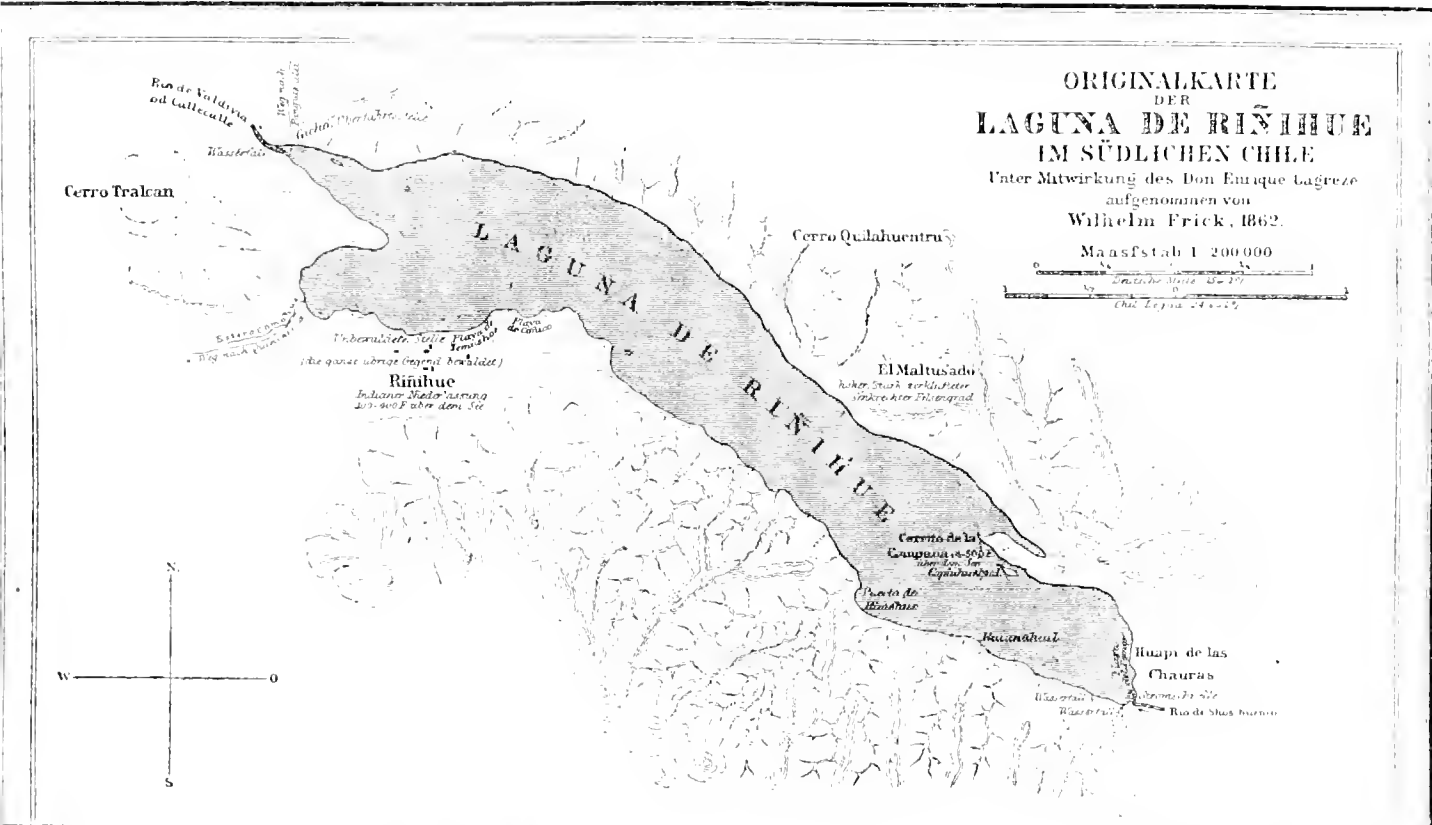
into the Panguipulli Lake; and which river is really the Valdivia, and that along this course they crossed many rocks and streams, but no mountain; the Lake of Neltume only had they traversed in a canoe, for the rivers, on account of their strong currents, could not be navigated. Leanca had not come with them. . . .

“Further, I have learned with tolerable certainty the following particulars partly concerning earlier reports. Our Valdivia, or Callecalle, rises in Lake Neltume to the east of Lake Pirihueico, and immediately after leaving the latter has the name of Calletue; it unites with the outflow of Lake Panguipulli, and falls, as shown on the map, under the name of Shos-huenco, into Lake Riñihue, from which it issues as the Valdivia River. *Lake Pirihueico and Lake Neltume are connected; on this side (the eastern) is called Neltume, and on the other Pirihueico; the latter is in the Pampas.* It is twice the length of Riñihue, i.e. ten or twelve leagues long. On the other hand, Lake Nontue is not identical with Lake Pirihueico, but must be connected with it by a short river, the Huahuum, which probably also passes through a small lake. Lake Nontue is called also Lacar, taking nearly the shape given on the map. At the narrow part is the crossing which Indians name Nontue. Messrs. Muhm, who some years ago went to the Pampas, affirmed, in opposition to the statement of the Indian Remigio Amoyao, that the Huahuum river flows into Lacar Lake, whence it would follow that the Pirihueico has two outlets on opposite sides, and that the Lacar has its outflow to the Rio Negro. It is now clear that Amoyao was right, that the Huahuum flows from the Lacar Lake into the Pirihueico, and could never have been seen by the Muhms since they were on the opposite side of the lake. The river these gentlemen crossed flows indeed into Lake Lacar, but is called the Chachum, and comes from the little lake of Quege, *which receives its waters from the Cordillera.* This information I received from one of the Spanish-speaking Indians from the neighbourhood of Rancho Lake, José Antonio Panguilef, a relation of the Cazique Checapan of Lacar, who had often been there and had accompanied the Muhms on their journey. My map has been corrected by his drawing made on the spot, and in the main, agrees with that of the Muhms.”

If Lake Lacar is situated in the Pampa of Buenos Aires, that is to say to the east of the Cordillera de los Andes, it will be apparent to the Tribunal that necessarily the boundary line in the high Crests of the Cordillera, which divides the waters of the same, could not fail to cross over the interoceanic watershed.

Señor Frick has drawn conclusions from the fact of the existence of fluvial connection between Chile and the Argentine Republic. He published a series of articles in Chile upon this question previous to 1881. In one published in the *Reforma Pacífica* (Buenos Aires) of July 11, 1865, it is stated that this interoceanic communication exists,* and in another article which appeared in the ‘*Deutsche Nachrichten*,’ of Valparaiso, at the close of 1895, he asserts that there

* The Water Connection of Chile with the Argentine Republic by the Riñihue. Extract from a report by



WILLIAM FRICK, 1862.

(From Petermann's Geographische Mittheilungen, 1864. Published by permission of Justus Perthes, Gotha.)

were communications from 1862 to that year, corroborating the fact that the river Valdivia takes its rise in the Lake of Lacar on the eastern side of the Cordillera de los Andes, which it intersects; and he also stated that, *as early as the year 1862 he communicated the information he had obtained to the President of the Republic of Chile, and that that information was published in 1865.**

William Frick, in the *Reforma Pacifica*, Buenos Aires (July 11, 1865). From *Zeitschrift für Allgemeine Erdkunde*, Neue Folge, vol. 19, Berlin, 1865.

P. 370. 1. "From the seaport of Corral on the Pacific to the place Arique. The distance amounts to nine leagues. The navigation of the small river is easy for lighter boats.

2. "From Arique to Hacienda de San Pedro. The distance by the river is ten leagues. The navigation of this stretch is attended with few difficulties.

3. "From San Pedro to the Lake Riñihué. The north side of the waterway is in the hands of independent Indians. In consequence of the extensive curve the distance amounts to eight leagues. Here the river forms the waterfall of Gieho, which, however, is said to be easily obviated.

4. "The Laguna of Riñihué. Excellent navigation of five and a half leagues.

5. "The river Shos-huenco or Calitúe. Forms the outflow of the Lake Pirehuaicó into the Riñihué. It has but one rapid, easily overcome. The length of the waterway is said not to exceed eight leagues.

6. "The Laguna of Neltume or Pirehuaicó. A comfortable waterway for boats of from ten to twelve leagues.

7. "From the Laguna of Pirehuaicó to the Laguna of Lacar, or the river Huahñum. Very easy navigation of twelve leagues. The first three leagues have a south-east direction as far as the place called Notúe. the narrowest part. The rest are direct east.

8. "From the Laguna Lacar to the river Catapuliche or Chumchuin, i.e. the eastern outflow of the Laguna Lacar. This is not yet quite precisely determined. All Indians, however, agree in saying that besides the said western water communication the Laguna Lacar has also an eastern outflow which is an affluent of the Rio Negro emptying into the Atlantic Ocean, and bears the name of Rio de las Siete Rocas (the seven rocks). The latter empties itself, in Lat. 30° S. and Long. 74° 15' W. of Paris, into the Rio Catapuliche, which is one of the principal tributaries of the Rio Negro. A map of South America, published in 1846 in Magdeburg by Albrecht Platt, shows this river-course with almost perfect correctness. The distance between the Laguna of Riñihué and the river Catapuliche or even Chumchuin is not more than twenty leagues. There would therefore remain hardly a few leagues distance between the Laguna Lacar and the Catapuliche, which, in consideration of the flatness of the territory, should easily be rendered navigable.

9. "The Catapuliche or Rio Negro. This river was in 1782 and 1783 explored by the Spaniard Villarino. It is but five leagues long, falling, as it does, into the river Limay flowing from the south, whence both take the conjoint name of Rio Negro. From the point of junction there are 160 leagues to its outflow in the Atlantic.

"By way of capitulation, the first four sections of the river communication present no difficulties whatever. One exception is the part between the Laguna Riñihue and the river Catapuliche. Seeing the distance between the two amounts to twenty leagues, and in this stretch lie the Laguna Pirehuaico with nineteen leagues and the Laguna Lacar with twelve leagues, it follows that even if the bends of the three outlets Shos-huenco, Huahñum and Siete Rocas were ever so great, the total distance, in which alone throughout the whole way between the two oceans there would be any necessity for erecting important waterworks, would hardly be more than fifteen leagues. The erections might include, e.g. sluices, or a canal like that of Morris, though infinitely cheaper than this, which in its course of thirty-six leagues has one fall of 1624 feet.

"There is therefore every probability of establishing direct shipping communication between the river Valdivia and the Rio Negro."

* Lake Lacar and The Boundary Question, by Guillermo Frick, Valdivia, October 25, 1895.

"In the article under the heading 'Interior,' which appeared in No. 2535 of the *Deutsche Nachrichten* of the 12th inst., it is said that, some twenty years ago, I sustained the theory, at the time most hypothetical, of a connection between the waters of our Rio de Valdivia and Lake Lacar. As, owing to the

In 1882, Señor Frick continued to call attention to the existence of a fluvial passage, through Riñihue, to the Argentine Republic, and to the possibility of

lapse of twenty years. I could not myself exactly recall what I had said and published about the notable Riñihue Pass, which I discovered, and of which nothing is known either now or through the Spanish discoverers, I tried to refresh my memory with what I wrote in my correspondence on the subject of the Cordilleran passes.

"This correspondence is found in the following numbers of the *Deutsche Nachrichten* of November 18 and 29, and December 2, 1882; April 28, May 16 and 23, 1883; January 2 and 16, March 20, April 10 and June 12, 1886; March 19 and April 30, 1887; March 14, April 4 and June 9, 1888; and February 2 and March 16, 1889.

"I give the numbers in case any of my readers may desire fuller information concerning the Cordilleran passes and the boundary question, the gravity of which is constantly increasing; for the greater portion of the public, however, this short extract from said correspondence will suffice.

"The correspondence of November 17, 1882 (published in No. 29) commences as follows:—

"Resuming my correspondence where it left off in my previous letter of the 13th inst., I must recall, before everything, that, last year, prior to the settlement of the boundary dispute between ourselves and the Argentine Republic, taking advantage of my friendly relations with one of the Ministers of that period, I addressed to him, on May 21, 1881, a note in which, entirely supporting the opinion of Señor Redslob, I called his attention to the exceptional importance of the Cordilleran passes in Villa Rica and Riñihue, and to the necessity of immediately occupying them.

"Soon afterwards, the dispute was settled to the satisfaction of both Republics (by the Treaty of July 23, 1881) and we must not be surprised that the occupation of these passes has been abandoned. Nevertheless, to lose sight of this question because, for the moment, no reason for alarm exists, and to permit the sister Republic to take possession of these passes, would be worse than foolishness, it would be a crime!"

"And further on:—

"A letter from Valdivia, published some two months ago in the *Mercurio*, which speaks of a "*Rio Misterioso*," also referred to by Señor Viñña M. in his article, has shown me that, in Valdivia itself, all the information I gave, more than twenty years ago, concerning this *Rio Misterioso*, has remained unknown; this river is none other than our Calle Calle or Rio de Valdivia. Before everything, I must rectify an error in the translation of the paragraph referring to this river: it is not "a traveller proceeding from Argentina" who gives particulars concerning this *Rio Misterioso*; what the Valdivian correspondent says is that "this river proceeds from Argentina." It precisely refers to our Rio de Valdivia, *which originates in the majestic Lake Lacar, on the eastern coast of the Andean Cordillera, which it traverses.*

"In a detailed report, dated May 14, 1862, which I laid before the then President of the Republic, Señor Joaquín Pérez, I told him that it had come to my knowledge that, some years previously, Cacique Paulino Patiño, of Putronhue (near Lake Ranco) had reached the Pampa, during winter, through the Ranco Pass, when the Ranco Pass was closed by snow, with other Indians he met in the Pampa, *that had traversed the Cordillera in a small boat*, arriving as far as Lake Riñihue, which is found on this side of the Cordillera.

"Urged on by this information, I organised an expedition to Lake Riñihue, for the purpose of travelling thence by water to the Pampa.

"The report of this voyage was accompanied by a well drawn map of Lake Riñihue, carefully laid down with the assistance of my companion, Señor Enrique Lagreze (who afterwards became my son-in-law), as well as by another carefully detailed map of the navigable rivers of the department of Valdivia. It was in vain that I hoped that His Excellency would take the necessary measures for following the detailed study of this extraordinary fluvial pass; I was not even told whether my report had reached the Minister, which I only casually learned, later on, from Señor Guillermo Cox. Our expedition reached as far as the point where the Rio Shos-luenco discharges into the lake, it being impossible for us to overcome the two small cascades which are found exactly in the mouth of the river which, beyond, appeared to be perfectly calm; all the ropes, and other means which we might have used, had been forgotten by our boatmen, fortunately for us.

"I say 'fortunately for us,' as we learned, later on, that notice of our voyage had been obtained by the Indians of Shos-luenco, who made preparations to murder us on our arrival. The expedition could not be

establishing a system of navigation between the two oceans. The opinion of such a competent person as Señor Frick deserves to be taken into consideration. In 1862 he advised the Government of Chile to occupy the Pass of Riñihue, which is undoubtedly the most important in the Cordillera, and by "Pass," he means a point near the overflow of Lake Lacar, between this and Lake Riñihue, in the Cordillera.

Señor Frick maintained this, when he stated that the dispute was settled, to the satisfaction of both Republics, by the Treaty of July 23, 1881, and it is therefore not surprising that the occupation of these passes has been abandoned.

The line drawn by the Argentine Expert in the part objected to by the Chilian Expert, passes through the point best indicated as a pass in the overflow intersecting the Cordillera at that point where the former divides the chain of Ipela, which in that place forms the crest of the mountain range. The opinion of the explorer Cox has already been quoted.

In Petermann's Mittheilungen there appears an analysis of Cox's labours, which is opposed to that of Frick, with regard to the interoceanic communication through the Lake Lacar, but is corroborative of the opinion previously expressed that "this lake is situated to the east of the principal chain of the Andes," which has since been recognised as the boundary between Chile and the Argentine Republic.*

concluded later on, owing to the want of indispensable, though trifling, means, nevertheless, from various information received later, it must be admitted that a fluvial connection between Lake Lacar, on the eastern side of the Andean Cordillera, and Lake Riñihue, on the western side, exists.

"A postscript to the same letter (published in the December number) also says:—

"It now occurs to me, that my readers might desire to have some particulars of the notable fluvial pass of Riñihue, and the possibility of establishing a system of navigation between the two oceans. Permit me, therefore, to add that, in numbers 483, 484 and 485 of the Patria of Valparaiso, under the title Communication with the Argentine Republic via Riñihue, my above quoted report to President Perez was reproduced, and that under the same title, the Patria published two other articles, one in No. 500 of March 24, 1865, and the second in No. 557 (May 22 of same year)."

"I must also observe that the position of the southern extremity of the Riñihue Volcano, which is shown in the small annexed map in lat. $39^{\circ} 52' 30''$ S. and in long. $74^{\circ} 10'$ W. of Paris, is not exact, as it was merely calculated by a single observation by means of the compass, taking relatively known points for base.

"It is also my desire that everybody interested in the great spectacles of nature, might have the opportunity of visiting the magnificent Lake Riñihue, and possibly, the other Cordilleran lakes, a thing which again, one will probably be able to do very soon with comfort and without danger.

"Probably!—How could I still retain the illusion that anything would be done to take possession, or to, at least, facilitate communications with this pass which 'is indubitably the most important of all the Cordillera,' when for more than twenty years nothing has been done—absolutely nothing?

"To all appearances, past neglect will bring upon us the war which we are now informed is inevitable.—(Signed) GUILLERMO FRICK."

* Cox' Reise nach der Laguna de Lacar in den Süllichen Andes und Bemerkungen darüber von Wilhelm Frick. Mittheilungen, 1865, p. 268.

P. 268.—"In a book published at Santiago de Chile at the end of the year 1863, Guillermo E. Cox

5. EXPLORATIONS BY VIDAL GORMAZ AND SIMPSON.

Señor Francisco Vidal Gormaz, whose name has already been mentioned, expressed in 1869 some doubts with regard to the alleged interoceanic com-

describes a journey he performed in the years 1862 and 1863 over two passes of the Andes in the most southern part of Chile.

"He travelled, namely, from Puerto Montt, capital town and seaport of the Colonisation-territory of Llanquihue, over the Laguna of Todos Santos and the Perez Rosales Pass to the Nahuel-huapi Lake, descended a short stretch down the Rio Limay or Negro forming the outlet of the Nahuel-huapi, suffered shipwreck on the journey, fell into the captivity of the Pehuenches, and, in order to procure his ransom from Valdivia, travelled across the Ranco or Lifén Pass, thither and back, and once more to Valdivia. He thus thrice followed the same route between Valdivia, Ranco Lake, Lacar Lake, and the districts of the Pehuenches at the head-waters of the Rio Negro.

"His report of his journey in full, preceded by a historic survey of earlier journeys made in those regions and followed by a synopsis of the results gathered by him, distributed according to subjects, and dealing with geography, orography, hydrography, botany, zoology, climatology, and language—the whole supplemented with a map, contains a great deal of new and valuable matter. Especially valuable are the details respecting the Ranco Pass.

"As Cox on his journeys between Valdivia and the Rio Negro repeatedly passed by the Laguna de Lacar and completely went round its north, west and east sides, crossed its outlet Hualum, and touched the Queni (Quege) Lake, he was in a position to check the information given by W. Frick (Geog. Mitth. 1864, Table 3 and p. 47) which shows the Laguna de Lacar as fountain lake of the Valdivia River and at the same time an affluent of the Rio Negro.

"Cox maintains that the Lacar Lake lies to the east of the main chain of the Andes and yet belongs to the river basin of the Great Ocean, since its outlet reaches through the Pirchneico and Riñihue Lake to the Valdivia River. He also maintains that from the hills hemming in the Lacar Lake on the east side, the traveller at once reaches certain affluents of the Rio Negro at only fifteen to twenty kilometres' (nine to twelve miles) distance from the lake, and that, accordingly, there exists in fact a deep depression in the Andes and a remarkable water connection between the east and west side of the mountain. According to Cox, however, the Lacar Lake sends no affluent to the Rio Negro. The hills in question form the continuation of the main watershed, which describes a large curve to the east. A utilisation of that depression is now in his opinion impossible, the lakes having very steep banks and the connecting water-arteries being real torrents with many cascades. Cox is of opinion that a railway through this mountain-fissure would offer less difficulties than stood in the way of the one from Valparaiso to Santiago.

"Unfortunately, the map, especially accompanying Cox's report, does not bear the stamp of precision such as at once shows that one has here to do with actual drawings and measurements. Nor are contradictions wanting in it. In the statements, e.g., respecting the height of the Lacar Lake, that on the profile of the map and in the small table of heights on p. 206 of the book gives 416, whereas that on p. 132 gives 530 metres. Decisive force cannot therefore be conceded to Cox's labours in respect of questions raised by Frick; and if we at once refuse to believe in a double outlet of the Lacar Lake towards the Atlantic and towards the Pacific, we are constrained to give our faith again to the views of Frick. From Valdivia he writes under date, Dec. 20, 1864:—

"Although Cox's description of his journey bears on its face the mark of superficiality, I will yet, without clearing up their numerous mistakes, make mention how, at any rate after the misadventure of his expedition, Cox has inwardly admitted that the considerable costs might have been employed to better purpose in exploring the infinitely more important passes of Riñihue and Villarica; and for that very reason he sets himself with all pains to throw them into discredit. As we are, besides, very well acquainted with his capacity for such like examinations, we should not be at all surprised if later travellers were to find the

munication, but he did not dispute the position of the Lake Lacar with reference to the Cordillera.*

Señor Vidal Gormaz carried out an expedition to the Bodadahue river, at the end of December 1862, and in his Report says—

P. 671.—“Returning to the Lake of Comao, it is 3.5 miles wider than shown in the map mentioned, and at the bottom of it is the outlet of the large river Bodadahue, which is navigable for large ships for a distance of five miles, and ten miles for boats. After this the river becomes very rapid, and is full of stones and small cataracts which render navigation impossible.

“When I could no longer navigate it, I left the sloop which I had and continued the journey by land, without losing sight of the river, and after nine days we reached its source, which is formed by three beautiful cataracts; the first is 120 metres (394 feet) above the reservoir of the cataracts, the second is 160 metres (525 feet) above the first, and the third is 200 metres (656 feet) higher than the second. I have never seen a grander or more imposing sight. The length of the river is forty-six geographical miles (of sixty miles to a degree). From the reservoir of the cataracts are to be seen, to the east, two large gaps which afford a passage into the wilds of Patagonia, *without it being necessary to cross any mountain the whole*

Lake of Lacar, which he sets down on his map at 416 and in the text at 530 metres, not even so many feet. Withal Cox does not scruple to assign all the data communicated by me to the result of his own explorations.

“Readers of my report respecting Riñihue will be interested to hear that, as the result of later information, it is hardly any longer to be doubted that, besides our Valdivia River, an affluent of the Rio Negro springs from the Lacar Lake. Further, according to recent information, it is highly probable that the Huechum-Lafquen, spoken of by the Jesuit Falkner, is the same lake as lies at the eastern exit of the Pass of Villarica, and that out of it the water flows on one side through the Chumehuin or Catapuliche into the Rio Negro, on the other through the Huampoe diagonally through the Cordilleras into the Lake of Villarica. We should by this account have two lakes at no great distance from one another sending their waters in contrary directions to two different seas.

“Another piece of news touches on the outbreak, presumably a year ago, of the Volcano of Riñihue, which had been supposed to be extinct. Its summit lies about 12,500 varas (10,448 metres = 34,280 feet) to the south-east of the east end of the lake of the same name. Although it is exceedingly difficult to obtain credible reports respecting those districts which are inaccessible to us, and the events there happening, I yet hope in the course of this summer to gather some trustworthy information on the presumed action of the volcano.”

* P. 6, Note 12.—“In venturing an opinion about Lakes Lacar and Queni, we have borne in mind the description and data which were given us by some Indians who were acquainted with this locality, as well as the data furnished by Don Guillermo E. Cox, in his Voyage in the Northern Regions of Patagonia, who, according to the map of his work, also included Lake Perihueico. This is also shown in Dr. Guillermo Frick's map, published in the German periodical, Mittheilungen ans Justus Perthes' Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie, von Dr. A. Petermann, 1864. This last map calls the lake (which Dr. Cox designates as Perihueico), Neltume or Perihueico, but both agree that these lakes send their waters to Riñihue.

“The question as to how Lake Lacar drains has become a very important problem in the geography of Valdivia, as some people think that it drains on both sides of the Andes, that is to say that it divides its waters east and west; but this cannot possibly occur. In any case the survey of this important region of the Andes will instruct us, later on, as to what really takes place, and will, without doubt, substantiate the fact that such a supposition cannot be correct, *in the case of such a Cordillera as that of the Andes.* (Continuacion de la exploracion del Rio Valdivia y sus afluentes, por Francisco Vidal Gormaz, Santiago de Chile, 1869.)

of the way and the Pampas. I tried to go there, but having only two days' provisions, we returned to Comao without my having had the satisfaction of realising my desire, which was to see something of the plains of Patagonia or Eastern Chile. . . . These woods, which offer such an easy passage, I think, will, later on, facilitate the extension of the Republic, as if a transandine railway is constructed, it must pass through these districts on account of the suitability offered for such an undertaking by the valley we crossed and which leads to the Pampas."*

These explorations showed clearly that the Pass of Oyarzum (where the river Bodadahue takes its source), *in the summit of the Cordillera, dominates the Patagonian Pampas.*

In 1871, Señor Vidal Gormaz continued his investigations. He explored the river Puelo, and in his Report states † :—

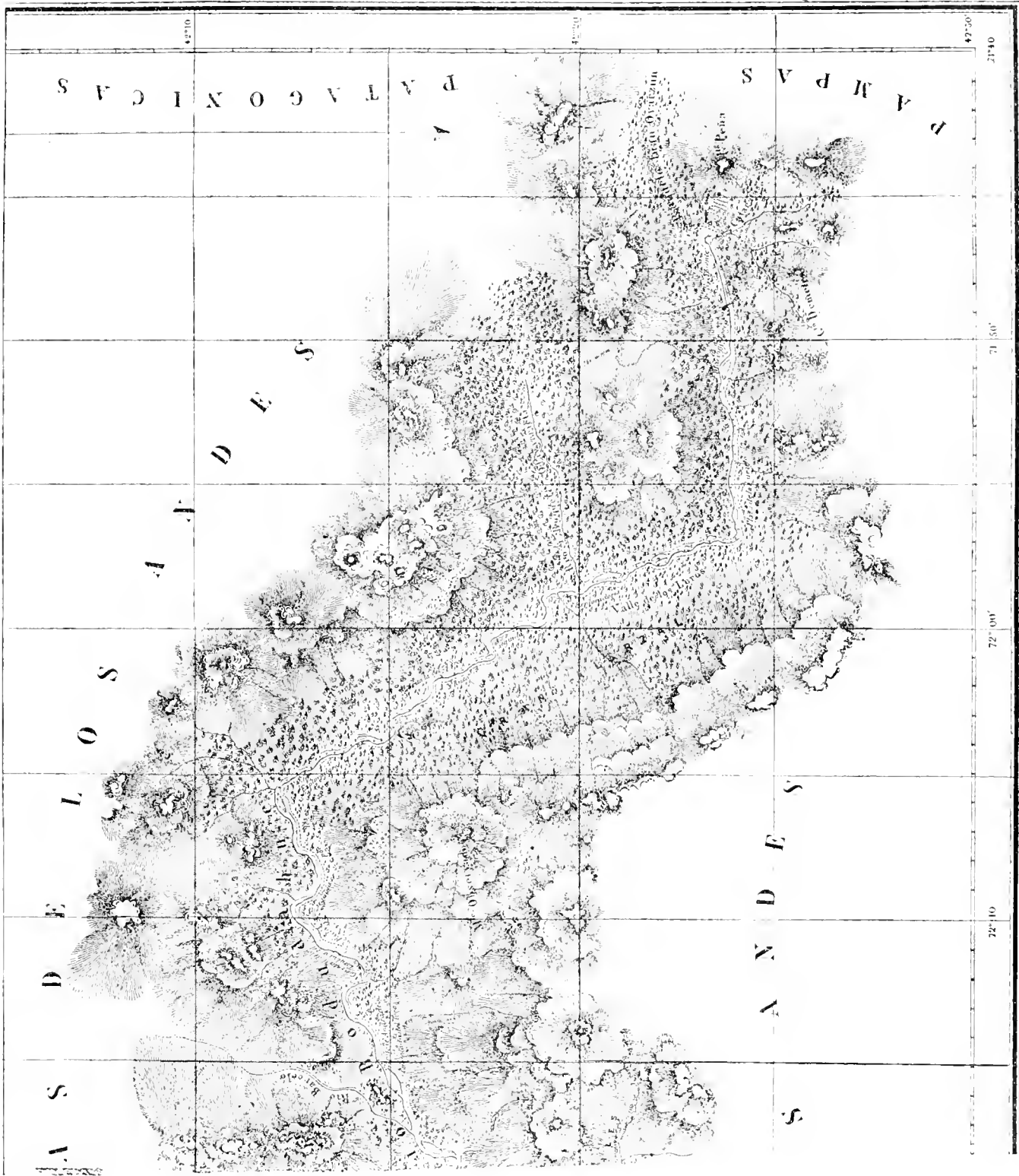
P. 65.—“Being on the summit of one of those hills, my companions Oyarzum and Tellez climbed up tall trees and succeeded in seeing a stretch of beach about 600 metres (1969 feet) in extent, doubtless belonging to some lake; *as on the east, only blue sky was visible, the termination of the Cordilleras being noticeable at a distance of five or six kilometres (3·1 or 3·7 stat. miles) from where we were situated.*

“Delighted with this and with the hope of being able to climb the mountain in question (a mountain in the neighbourhood) we went on; but the broken mountain, and its thick woods only permitted us to advance very slowly, so that, in order to attain the desired object, we required at least three days. In view of this, and owing to the scarcity of our provisions, with considerable disappointment we turned back, skirting the river, wherefrom we saw another fall, larger than the one we had already passed, before reaching Lake Tagna Tagna, but having on its southern side a small sandy beach, over which we could draw the boat. At 2 P.M., after various miraculous escapes from the steep precipices along the river banks, we reached the spot where our boat was lying. Briefly, the origin of the river can be nothing but a great lake, a small part of which has been seen, the slight elevation, *and the small quantity of snow on the Cordilleras* showing that it is quite impossible that a river of any considerable volume can be fed by the range. The temperature of the waters of the lake, which is much higher than that of the *streams of the Cordillera* which flow into Puelo, as well as the fact that flocks of crows follow the course of the river, which necessarily proceeds from a lake, leave no doubt in my mind, as to the nature of the origin of the Puelo river.”

The explorations of Captain Vidal Gormaz are of capital importance for two main reasons: (1) Because they corroborate once more that some rivers cut through the agreed boundary, that is to say, the Cordillera de los Andes: and

* Geografía de Chile. Discovery made by the second lieutenant of our Navy, Don Francisco Vidal Gormaz, of two large gaps which offer a passage to the Argentine Pampas, on a level with the Chilean Archipelago. Report from the same of February 21, 1863. *Anales de la Universidad de Chile*, vol. 22, Santiago, 1863.

† Exploración del Seno de Reloncavi, Lago de Llanquihue y Río Puelo, por Francisco Vidal Gormaz (Santiago de Chile, 1872), British Museum, 10481, ff. 8.



(2) Because they show that the Chilean Government had official knowledge of the fact, in consequence of surveys carried out by officers of their Navy.

Captain Vidal Gormaz' book where the just-quoted phrases appear, contains a map in scale 1 : 80,000, and the Rio Puelo is therein shown to cross through the Cordillera. The map is inscribed in the following manner : "Plano del Rio Puelo, *levantado por orden del Supremo Gobierno por la Comision exploradora de Llanquihue, bajo la direccion del Capitan de corbeta Francisco Vidal Gormaz, en 1872*" (plan of the river Puelo *drawn by order of the Supreme Government by the Llanquihue surveying commission, under the direction of Lieut. Commander Don Francisco Vidal Gormaz in 1872*).

As an argument in favour of the Argentine contention, this map is conclusive. The Chilean Government ordered the drawing up of a plan in which the Cordillera de los Andes is shown to be cut by a river : the same Chilean Government entered into a Treaty some years later in which the Cordillera de los Andes is agreed upon as the Argentine-Chilean boundary : therefore, the Chilean Government was aware that the agreed divisional line let pass through its gaps the watercourses that rise in Argentine territory.

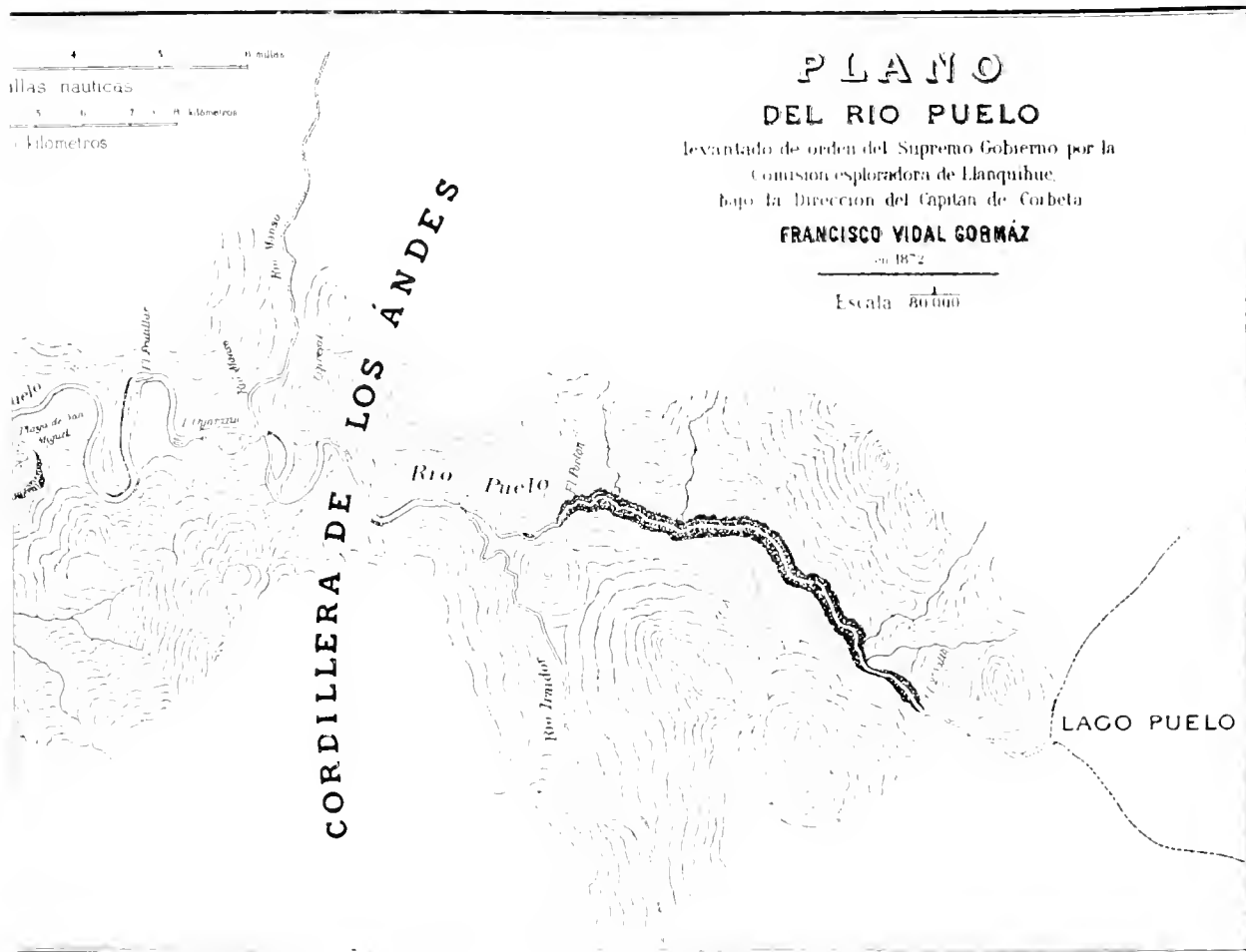
Señor Barros Arana recognised this fact before he was appointed Chilean Minister to the Argentine Republic, when he gave his approval to the map of Chile, drawn by Señor Manuel J. Olascoaga.

In 1870, the Chilean Government sent the gunboat 'Chacabuco' to carry out an exploration of the western coast of Patagonia, and among the instructions given to Captain Enrique M. Simpson were the following—

1st. "The exploration will be extended as far as the coast, comprised between the 44th and 46th degree of latitude, and will be especially directed to the Aysen river, and afterwards to the other arms of the sea and rivers *which might serve as a waterway through Patagonia.*" *

It will be opportune here to call to mind that, so far back as 1866, the Minister of Chile, Señor Lastarria, had proposed to the Argentine Government that the boundary line between the two countries should be drawn through the eastern slope of the Andes, and that this proposition was, no doubt, based upon the knowledge, already possessed, of rivers which intersected the Cordillera, and which watered fertile valleys on the eastern foot of the same : but such a

* Exploraciones hechas por la Corbeta Chacabuco, Anuario Hidrográfico de la Marina de Chile, vol. 1, p. 3.



VIDAL GORMAZ, 1872.

[Face p. 128.

lago de Llanquihue y río Puelo, Santiago de Chile, 1872).

proposition was immediately rejected by the Argentine Government, which would not recognise or accept any other boundary than the crest of the Cordillera.

The 'Chacabuco' anchored towards the end of February, in the Aysen Inlet, and Captain Simpson commenced the exploration with which he had been entrusted by the Chilian Government.

In his Report,* he says :—

"There has been explored an extent of fifty miles of rivers, and there has been revealed a fertile valley at the end of the Aysen, with great abundance of timber and cultivable land, *penetrating across the Cordilleras to long. 72° 33' west of Greenwich, without reaching the end of the valley.*

"*There has been revealed the possibility that there exists a passage by water across the Cordillera further to the south of the Aysen, since, as far as has yet been seen, a remarkable depression occurs there, and there ceases to be a continuous chain.*"

Being in possession of these particulars, the Chilian Government, which was desirous of obtaining the eastern valleys, determined to set on foot a fresh exploration, and the 'Chacabuco' returned to the Aysen and

"should circumstances permit," say the instructions, "Captain Simpson will prosecute the exploration of the Aysen eastwards, as far as may be possible, in order to investigate *the rivers and lagoons which may be useful for the purposes of interoceanic communication.*

"He will make plans or sketches of the regions traversed, noting the circumstances relating to the ground, the vegetation and all other particulars which concern the establishment of a colony in those regions."

On February 4, 1871, Captain Simpson commenced the exploration of Rio de los Ciervos (or river Huemules), hoping that it would intersect the Cordillera, as he was led to believe would be the case from the footmarks of the animals (deer), and that he could reach Eastern Patagonia, where they abound.

The first exploration did not give the result that had been anticipated, and the explorer found himself in a country which sank precipitously from the Cordillera. He then visited the bottom of the estuary of Quitrileo, in order to investigate a river which he discovered to the north-east containing rather deep waters, and which he thought might possibly be the real outlet of the Coluguape Lagoon in Eastern Patagonia (in the east of the Andes), but after going three miles up he found it to be an unnavigable stream.

On the 20th of March, he attempted to ascend the river Aysen once more,

* Exploraciones hechas por la Corbeta Chacabuco, Anuario Hidrágrafico de la Marina de Chile, vol. 1, p. 19.

and, seven days later, he reached the point where he had arrived in his first voyage. Leaving behind him a large snow-capped mountain with three peaks, the explorer passed several difficult rapids, and on April 5 the party resolved to turn back.

The following is the description that Captain Simpson gives of this region, and of this river, connected with which, according to him, is a very large basin "beyond the Andes" (ultra Cordillera) (i.e. to the east of the Andes) :—

P. 39.—"The rapids being very difficult to pass, and the men being without shoes, linen or water, I determined to go no further with the boats, and we set out for the trip on land instead. After walking two miles, through the dense forest, we reached on the margin of the river, a point from whence we had the great pleasure of seeing that, instead of turning southwards as we had surmised, *the river completely traversed the chain—diagonally—to the north-east; we were able to see through the gorge, several miles further on, without being able to perceive anything but low diminishing hills.* We noticed that the river here had no current, but was of considerable depth; we were also able to assure ourselves that there were no falls further up, as there was no trace of foam, whereas in the river Blanco, the previous year, the foam indicated the existence of falls fifteen miles away. *We, therefore, had not the slightest doubt that we had already gained the last gorge of the Cordillera, and had not the lagoon been at such a distance all difficulties would have been removed.*

"At this gorge, we found that, by the river, we were eighty miles from Moraleda Channel, we having traversed no less than fifty-five miles of the Cordillera.

"I had previously thought that the river was derived from the snows of the Cordillera, but in ascending it this time, I found no difference whatever in it from last year, in spite of the great amount of snow melted during the exceptionally hot summer; *although the three days of heavy rain experienced by us this time completely altered the position of the obstacle caused by the drift of trees.* On our first voyage, we had seen on the shore an immense trunk, the root of which measured seven metres (twenty-three feet) in circumference, its trunk being three metres (9·8 feet) in diameter, and twenty-five metres (eighty-two feet) in length; in going up this time, we found it in the same spot; but on returning it had disappeared.

"It was evident thus, *that the increase of the waters of this river, mainly arises from the rains and not merely from the melting of the snows, although the latter must help to swell the volume.* This seems to point to a very considerable basin beyond the Cordillera (ultra Cordillera). My idea is, that the summit of the lower lands is found in the eastern plains, and that for this reason the waters derived from the snows or rain are compelled to turn westward, the great increase of waters taking place during those storms which occasionally visit Eastern Patagonia."

In his Report on the result of the expedition, Captain Simpson says :—

P. 47.—"The isthmus of Ofqui has been defined on the north, re-discovering the celebrated lagoon of San Rafael, and *the Cordillera de los Andes has been crossed by water as far as its last gorge, thus proving that the river Aysen takes its rise in Eastern Patagonia,* and showing the facility of constructing a road or a railway to that territory."

On November 22 of the same year, preparations were made in the Port of Lagunas for a fresh expedition to the Rio Aysen in Patagonia, which in some old maps is described as the "Rio de los Desamparados," and in others as the "Rabudos."

In his Report this zealous explorer says that, on December 19, having caused some persons to ascend the mountain, they told him that they were already at *the end of the Cordillera*.

Having reached this point himself, he found that he *was indeed at the foot of the eastern slope of the Cordillera*. Ahead were only to be seen two detached hills at a short distance. The nearest was about three miles off, and was about 400 metres (1312 feet) high, with its upper part bare and streaked horizontally, the other being farther and lower, the rest of the land being composed of undulating hills covered with thick woods. He adds :—

P. 58.—"However, the dense atmosphere limited our vision to a distance of less than ten miles.

P. 59.—"We had arrived at the end of our long toil and privations *as we had crossed the great chain of the Andes in lat. 45° S., an exploit which had never before been achieved*, and this was especially remarkable, every step of the ground being new, without any previous data to guide us, as, where there are no inhabitants there are no traces nor traditions. When we undertook the expedition, we only knew *that the Cordillera de los Andes had an end, and at that end we arrived*."

Three men whom Captain Simpson sent farther on, told him upon returning that—

P. 59.—"Their march had been in part over the upper hills, and in part over the plains which occurred from time to time, bending a little to the south. From the extreme point, where they had arrived, they saw, *looking backwards, the Cordillera stood entirely clear away, which proved that we had reached the end of it*. Moreover, they found traces of coal, and of this there was no doubt, as one of the party had previously worked for a long time in the Lota mines, and was very familiar with coal pits."

From this place they commenced to return towards the inlet, and undertook fresh explorations, in the river Huemules.

On February 7, 1872, they arrived at the snow-drift they had found in their previous expedition.

P. 72.—"The cliff of it," he says, "which was some ten or twelve metres (39·4 feet) high, resembled a honeycomb, being pierced by innumerable caves and fissures, through which the water flowed, forming very small streams, which unite at the spot where we had left the boats. The glacier itself falls from a height of more than a thousand metres (3281 feet) from the south, and is probably the extremity of the great sheet which

reaches the Gulf of Penas, occupying the intermediate valleys of the Cordillera. The ice is mixed with volcanic ashes, and is of a leaden colour, which is the cause of the tint of the waters of the river.

“As already remarked, it was a very clear day, and having ascended the glacier a considerable height *we could see many miles to the east one single detached mountain cone, and beyond that was an unbroken horizon: there being no further doubt that the valley traversed the Cordillera completely*, as before we had seen mountains at a distance of more than fifty miles. *If any further proof were needed, the presence of so many huemules would suffice. From this height, we could likewise see that the sheet of ice also descended eastward between some hills on the southern side, which perhaps constituted the source of some of the rivers which empty into the Atlantic.* . . .* As to the other branch of the river, we found it impracticable for boats, as, owing to the season, there was very little water—a proof that it derives its waters from the rains and not from the snows.”

In a fourth journey, Captain Simpson inspected a river which flows to the north of the Aysen, and he ascended it till he reached some rapids. He called this river Cisnes, and he says that “it is about two-thirds the size of the Aysen,” but, “like that river, it has many obstacles, and for this reason it is not navigable. *The valley appears to continue to the east until it crosses*” the range.

In this fourth expedition, he once more attempted the exploration of a second branch of the river Huemules as far as its northern sources, but without any other result than to find that the gorge, where it flowed, advanced into the interior among snowy mountains. He concludes this portion of his Report with some general considerations, in which he supposes the existence of a secondary ridge to the west of this chain of mountains, *which till that date was called the Cordillera de los Andes.*

P. 146.—“This secondary sierra, or ridge, constitutes,” he says, “the real division of the waters; and it is for this reason that rivers like the Aysen are found, *which, rising in the other side, completely traverse the Andine range.*”

The surveyors who will be sent by Her Britannic Majesty's Government to examine these regions will undoubtedly find that this “secondary sierra” does not exist; that the sources of the rivers Cisne, Aysen and Huemules or Ciervos lie in the Patagonian Pampas, and, at the same time, they will confirm the opinion of Captain Simpson, with regard to the total cut of the Cordillera by those rivers.

* The river Cisnes or Huemules rises in the Lake Elizalde, situated to the east of the breach of the Cordillera, seen by Captain Simpson.

6. EXPEDITIONS BY THE OFFICERS OF THE CHILIAN GUNBOAT 'MAGALLANES.'

In the Patagonian Plain, Captain Simpson penetrated from the Pacific to the east of the Cordillera de los Andes. Captain George Chaworth Musters,* during his journey in Patagonia accompanied by the Tehuelche Indians, penetrated in the same Cordillera westwards to the height of the river Palena and, travelling along its most easterly affluents, crossed on the plain in the Pampas, east of the Cordillera, the interoceanic dividing line of the waters which

* Musters' *At Home with the Patagonians*, London, 1873 :—

P. 154.—“Our programme was to leave all the women, toldos, and other encumbrances in this spot, named “Weekel” or Chaykash—a regular station, and which Hinchel's party had occupied a few weeks previously—and proceed ourselves into the interior in search of cattle. The following morning at daylight horses were caught and saddled, and after receiving the good wishes of the women, who adjured us to bring back plenty of fat beef, we started off just as the sun was rising behind the hills to the eastward. The air was most invigorating, and we trotted along for some distance up a slightly irregular and sandy slope, halting after an hour or two by the side of a deliciously clear brook, flowing east, where we smoked. We had previously passed guanaco and ostrich, but no notice was taken of them, the Indians having larger game in view. After passing this brook, the head water of the river near which we had left the toldos, we skirted a large basin-like plain of beautiful green pasture, and after galloping for some time entered the forest, travelling along a path which only permitted us to proceed in Indian file. The trees were in many places dead, not blackened by fire, but standing up like ghostly bleached and bare skeletons. It is a remarkable fact that all the forests on the eastern side are skirted by a belt of dead trees. At length, however, just as we came in sight of a curiously pointed rock which in the distance resembled the spire of a church, we entered the forest of live trees; the undergrowth was composed of currant, bay, and other bushes, whilst here and there were beds of yellow violets, and the inevitable strawberry plants everywhere. After crossing a stream which, flowing from the north, afterwards took a westerly course, thus proving that we had passed the watershed, we proceeded, under cover of a huge rock, to reconnoitre the hunting-ground. The scenery was beautiful: a valley about a mile wide stretched directly under us; on the southern verge a silver line marked the easterly river, and another on the northern the one debouching in the Pacific; whilst above, on both sides, rose high mountains covered with vegetation and almost impenetrable forests. On the western side of the valley a solitary bull was leisurely taking his breakfast, and above our look-out rock a huge condor lazily flapped his wings. These were the only specimens of animal life in view. Pursuing our way in perfect silence, as from the first entrance into the forest speaking had been prohibited, we followed the leader along the narrow cattle-path, passing here and there the remains of a dead bull, or cow that had met their fate by the Indian's lazo, and at length descended to the plain. It was about midday, and the day was warm, so we halted, changed horses, looked to our girths, got lazos ready for use, and then started on. As we were proceeding we observed two or three animals amongst the woods on the opposite side, but knowing that it would be useless to follow, pursued our course up the valley. Having crossed the western stream, we at once entered a thicket where the path was scarcely distinguishable from the cover, but our leader never faltered, and led the way through open glades alternating with thick woods, on every side of which were cattle marks, many being holes stamped out by the bulls, or wallowing places. The glades soon terminated in forests, which seemed to stretch unbroken on either side. We had expected before reaching this point to have found cattle in considerable numbers, but the warmth of the day had probably driven them into the thickets to seek shelter. We now commenced to ascend over a dangerous path, encumbered here and there with loose boulders and entangled in dense thickets, whilst we could hear and catch occasional glimpses of the river foaming down a ravine on our left, and presently arrived at the top of a ridge where the forests became more uniformly dense, and we could with great difficulty pursue our way. It was a mystery to me how

descend to the Atlantic and to the Pacific, which was confirmed in 1888 during a visit to the spot by the present Argentine Expert, who reported on the fact to his Government.

Two years before the Treaty of July 23, 1881, was signed, there were published in Santiago de Chile, vol. 5 (1879) and vol. 6 (1880) of the *Annuario Hidrográfico de Chile*, containing the account of various expeditions carried out by officers of the Chilean gunboat 'Magallanes' in the Andine regions from parallel 52° to that of 50° S. lat.

One of these expeditions had for its purpose the carrying out of the exploration of the eastern valleys of the Andes, "coasting the Andes until they reached the banks of the Rio Santa Cruz." * Extracts from the journal of the members of the expedition (November 1877) show what was their opinion respecting the eastern extremity of the Cordillera.† In no case do they say that they succeeded in penetrating it, having made, on the contrary, their journey outside of it. It may, in passing, be said that, notwithstanding the opinion of the members of this expedition, the Chilean Expert pretends that a large part of the regions where they travelled is not only comprised within the Cordillera, but situated in its western slope.

Orkeke, who acted as guide, knew where we were, as on one occasion the slightly marked paths diverged in different directions, and on another we literally found ourselves among fallen trees in a forest so dense that the light of day scarcely penetrated its shades. Our leader, however, never hesitated, but led us onwards in all confidence. Whilst brushing along, if I may be allowed the term, trying to keep the leader in sight, I heard something tapping on a tree, and looking up, saw close above me a most beautifully marked red-crested woodpecker. We at length commenced to descend, and after passing many channels of rivulets issuing from springs, where a slip of the horse's foot on the wet and mossy stones would have occasioned something worse than broken bones, as they were situated on the edge of a deep ravine, finally emerged from the woods and found ourselves on a hill of some 300 feet in height, whence we looked down on a broad plain in the form of a triangle, bounded by the river flowing through the ravine on the north side, and on the southern by another coming from the south, which two streams united in one large river at the western apex, at a distance of about perhaps a league. Above and around, on all sides excepting to the west and the ravines through which the river flowed, rose the unbroken wall of the lofty mountains of the Cordillera, many of their peaks snow-clad."

* From the exploration of Skyring Water it was ascertained that on the west "mountain ranges perpetually clad with snow" bounded it, and that the said Cordillera is intercepted in its southern part by two extensive breaks which perhaps give passage to channels, or are the commencement of creeks which lead up to glaciers.

† In the instruction of the Chilean Government for the exploration of Skyring Water it was ordered that:—"In Skyring Water and in the port which the commander of the 'Magallanes' may deem most safe and adequate, he will land a party consisting of Lieutenant Juan Tomas Rogers, Don Enrique Ibar, naturalist, and a midshipman, in order that they, according to circumstances, the elements the colony may offer, and the various provisions the nature of the soil may supply, *may carry out the exploration of the eastern valleys of the Andes*, a fixed time being agreed upon for their return to the ship; but giving them the fullest possible liberty so that the party may travel northwards, coasting the Andes until they reach the banks of the Rio Santa Cruz, determine the position of the lakes, botanise, and astronomically fix the most important points of those regions." (*Annuario Hidrográfico de Chile*, vol. 5, p. 56, Santiago, 1879.)

Lieutenant Rogers, in the narrative of his Exploration of the Patagonian Pampa, when describing the ground in the neighbourhood of Laguna Blanca (about $52^{\circ} 30' S.$) says * :—

“A chain of hills, some eighty metres (262 feet) high, follows along its course at a

* The Commander of the Expedition, Captain Latorre, says (*ibid.*, p. 38) : “November 7, 8, 9.—During these three days, which were the most beautiful we had had, the officers were engaged in making the necessary preparations; some for the continuation of the westward measurement, and the others for their exploration of the *Patagonian Pampa*.

“The serene and perfectly clear atmosphere enabled us to perceive all that can be seen of the expanse known as Skyring Water, and the region improperly called King William's Land, which is nothing but an extensive gulf—a continuation of the said Skyring Water. It is bounded *on the west by mountain ranges perpetually clad with snow*, a fact which proved that their height is not less than from 1069 to 1222 metres, the height of the everlasting snow-line in those latitudes according to the learned Captain Parker King. (*Darwin's Naturalist's Voyage round the World*, p. 244, 1870 edition.)

“*The said Cordillera is intercepted in its southern part by two extensive breaks*, which, perhaps, give passage to channels, or originate creeks which terminate in glaciers. The ranges in this region are notable for the countless peaks, singularly detached, in which they culminate, and innumerable gorges, perhaps the beds of other glaciers, giving the Cordillera a magnificent aspect, as they look like immense frozen rivers descending through very wide channels half-way down the mountain slopes.

“The heights round Skyring Water on the north and south present gentle slopes, rising gradually to a height of from 250 to 300 metres. From amongst these heights certain peaks rise offering objective points to the navigator; predominating them, and on the north coast, is Mount Campana, it being considered to be like a bell, though to our mind, it resembles a pyramid, like one of the beacons which mark notable points in the Magellan Strait. In clear weather the mountain is visible directly one enters the Fitz Roy Channel through Otway Water, and in almost the whole extent of Skyring Water.”

Lieutenant Rogers, an officer of the expedition, says (*ibid.*, p. 64) :—“A chain of hills, some eighty metres high, follows along its course at a distance of about two miles. The slopes are similar to each other. The country to the west is low, the Andes being noticeable about twenty-five miles away.

P. 66.—“After walking a few miles, we found that the hills changed to table-lands, all of one absolute height, and similar to those described by Captain Fitz Roy in the region of the Santa Cruz river, and apparently consisting of the remaining portions of a table-land, of which the intervening valleys are areas that have been gradually worn away. At times some erratic, granitic rocks of irregular size are seen, whilst small lakes, with beds of pebble and small stone, are to be found in the winter.

P. 67.—“We then tried to take some azimuths on the peaks of the Cordillera, but we could not distinguish any summit. The Andes were not far distant from us, *and towards the west, following the river, we clearly perceived a break in the Cordillera, a sort of opening*, which Zamora called the channel, which is in the part where Obstruction Sound is shown on the English map.

P. 72.—“The passage across the river Gallegos was effected with the greatest facility, thanks to the great care taken in arranging the loads, as, in fording it, the water reached half-way up the horses. We camped on the north, or left, bank, in the midst of the small trees we had so frequently observed and coveted from the south coast. These trees give their name to this ford of the river, it being called the *Paso de los Robles* (Oak-tree Passage).

“The table-lands on the north side of the river are higher than those on the opposite bank, as we have said. We ascended the one at the rear of the encampment, from whence we made some observations. We had a beautiful view from its summit; beneath us flowed the river Gallegos, with its winding west-to-east course; on the north and south of it were the vast pampas, with their blackish hills and troops of *guanacos*, along the whole extent of the horizon. *On the west rose the snow-clad Andes.* . . .

“On Tuesday, the 27th, despite our ardent wishes to continue our march, we were only able to start at midday, owing to the horses, fleeing from the insects, having withdrawn a good distance from the margin of the river. We made towards the W.N.W., finding the formation of the ground to be identical with that of the southern district of the Gallegos; it was almost entirely bare of vegetation, save for the constant grass and

distance of about two miles. The slopes are similar to each other. The country to the west is low, the Andes being noticeable about twenty-five miles away" (to the west).

the abundance of flowers, many very beautiful, though of very little variety, but which our companion Ibar eagerly collected.

"The table-lands or hills are, as already observed, slightly higher, and contain many small lagoons fed by streamlets, causing the horses considerable trouble. Scarlet flamingoes, various kinds of duck, and the handsome *canquen*, dwell, however, in all of them.

"We also saw a number of *queltchues* (*Vanellus cayennensis*), and a kind of pullet, of long beak, called *madrugadoras* by the peasants.

"The day was very clear, which enabled us to keep the Andean chain in view, but we were unable to distinguish any of its summits, which was very annoying, as that was the only way in which we could continue our work in a connected way, by comparison with what was already known.

P. 74.—"After breakfast, we decided to ascend the most western cone, which is also the highest. We reached its base on horseback, making the ascent on foot on its N.N.E. side. The cone, and the one on the east, consist of volcanic lavas. They were named Philippi, Domeyko, and the eastern one Gay, in memory of those three *savants* who so greatly contributed to the progress of science in Chile.

"The cones present an imposing appearance, resembling the ruins of a gigantic fortress; at their base a great number of columnar-shaped rocks, all composed of lavas, are found.

"The ascent of the Philippi was not difficult. In its most westerly, and highest peak, is a crater two or three metres in diameter, and slightly more than one in depth, surrounded by smooth stones all of the same size, and laid so hermetically, that they look as though they had been arranged by the hand of man. Ibar took specimens of these lavas. We set fire to some withered shrubs we found at the top, which gave the mountain the appearance of an active volcano.

"From the summit of Mount Philippi, a vast horizon presented itself; the pampa and its numerous small lagoons were on the south-east and south; on the west and north were lofty broken hills, with deep gorges and sides covered with vegetation in many parts, the snow-covered Andes rising in the distance.

"The Philippi cone is situated, approximately, in lat. $51^{\circ} 38'$ S. and long. $71^{\circ} 40'$ W. The Domeyko, two miles to the east of it, and the Gay ten or twelve miles E $\frac{1}{4}$ S. The Philippi only rises *sixty metres above the level of the pampas*. The slopes of the hill are covered with various flowers, and in the air numerous condors fly about in circles.

P. 75.—"The nature of the ground changed notably as we advanced (westward), and the vegetation increased as we approached the plains of Diana; but there are many swamps, which, being dangerous for horses, it is necessary to go round them.

P. 76.—"We crossed various rivulets, two of them of some volume; one might be called a river; Greenwood called it Turbio (muddy) owing to the ordinary state of its waters. This river, like the Gallegos, abounds in fish, and is the principal affluent of the latter river.

"When travelling along this route, Greenwood assured us that those rivulets, in previous years, were crossed on foot, the water not being above the knee; whereas when traversed to-day the water reached half-way up a horse's body.

"Along the path, we found a quantity of guanaco skeletons, sometimes thirty all together, probably killed by the severity of the winter.

"The hills succeed one another rapidly, covered with woods, which become denser as the coast is approached, where the trees are taller. We noticed oak trees no less than fifteen metres high.

"The Andean Cordillera seems to continue its course along the peninsulas left by the various coves, which cut through it, to continue on islands and on the continent itself further south. A branch trends towards the east, about ten miles north of our encampment, terminating in the pampas, in long. $71^{\circ} 10'$; it retains patches of snow on its upper part up to the end of November.

P. 79.—"The ground becomes much better for marching, although the hills are more broken in parts, leaving extensive valleys; but there is not even a bush in sight, the whole region seeming like an utterly sterile desert. *On the west a snow-covered Cordillera could be seen, a part of the Andes*, known to the peasants by the name Cordillera de los Bagnales, owing to the presence on its slopes of a great number of wild horses, where travellers and natives come in search of them. Zamora assured us that, on one occasion, he had seen more than a thousand *bagnales* (wild horses).

P. 82.—"The Andes in this part, called Cordillera de los Bagnales by the peasants, as already stated, is

Before leaving the Rio Gallegos,

"After walking a few miles we found that the hills, changed to table-lands, all of one absolute height and similar to those described by Captain Fitz Roy in the region of the Santa Cruz river, and apparently consisting of the remaining portions of a table-land, of which the intervening valleys are areas that have been gradually worn away. At times some erratic granite rocks of regular size are seen, whilst small lakes, with beds of pebble and small stone, are to be found in the winter."

These table-lands (mesetas) which form the level ground of Patagonia, and the beds of the valleys, are now erroneously considered by the Chilean Expert as forming the *principal chain (encadenamiento) of the Cordillera de los Andes which divides the waters.*

Señor Rogers, in his journey to the north, always had the Cordillera de los Andes on the west. On his way he found no mountain before seeing the Cordillera de los Baguales.* "The Morro Philippi" which he ascended, the highest

called Bagual by the Patagonians. The former give it that name owing to the wild horses which abound in the district; and the latter deriving it from an Indian called Bagual, to whom they attribute the introduction of the horses into this district, which have so abundantly propagated in it.

"The Cordillera de los Baguales, which is only a part or section of the Andes, is extremely fantastic in its form and in its snow-capped summits. *It is cut in its southern part,* leaving a rugged mountain with three notable peaks seen in the distance, called Payne by the peasants, owing to its resemblance to another of that name in the Argentine Republic.

"Towards the north, various branches are seen, which strike off from the Cordillera and trend towards the east, diminishing in height; they are very broken, and we suppose that they are the limit ranges mentioned by Fitz Roy in his voyage on the Rio Santa Cruz.

P. 84.—"We ascended imperceptibly, and at 11 A.M. we reached the top of a chain of hills some 900 metres in height, seeing, further to the north, another similar chain; but between them lay a deep valley, through which the majestic Rio Santa Cruz, in a winding course, flows west to east. We then found ourselves in meridian $71^{\circ} 40'$, and consequently, within the point reached by Captain Fitz Roy when he explored this river in April 1834. On the west we perceived a great lake, from which, apparently, the river flowed, and in the *background, the snow-covered Cordillera, with its varied and beautiful peaks, at a distance not easily determined.*

"When, later on, we moved towards the lake, the Cordilleran landscape reminded us of a view of the *Andean Cordillera* taken from the Misterio Plains, which is contained in vol. 2 of the Voyages of the 'Adventure' and the 'Beagle,' p. 352, and we could appreciate the difficulties which that expedition must have encountered, and which prevented them climbing those lofty mountains and attaining the object they had in view.

"The descent of this Cordillera was difficult, owing to its abrupt slope and to its barrenness, as it only presented here and there some patches of the black bushes of which we have spoken. As soon as we had descended this high mountain, we lost sight of lake and river.

P. 88.—"After night had fallen, we heard two noises, similar to those produced by a volcano. Zamora told us that on previous occasions he had heard the same sounds. They probably proceed from the Chalten volcano on the shores of Lake Viedma, or, perhaps, from the glaciers which abound in the Andes, whose falling masses and avalanches perfectly resemble the noises we had heard."

* "The Cordillera de los Baguales in the map of Lieutenant Rogers is represented as running north and south, and comprising the mountains which rise in front of the main chain of the Cordillera de los Andes."

of the volcanic hills of the Rio Gallegos, rises only sixty metres (197 feet) above the plain, and does not extend to the plateau (mesetas) which may properly be considered as the Patagonian plain.

Like some Chilian writers, Señor Rogers calls the Cordillera the elevations more or less important which rise above the general relief of the ground, but when reference is made to the *Cordillera de los Andes*, he uses that term, or the *Andes simply*, as also do those writers.

The Chilian naturalist, Señor Ibar Sierra, who accompanied Señor Rogers in his expedition, described the landscape which he had before him to the west of the Rio Gallegos, in the immediate neighbourhood of the channels which the Argentine Expert maintains, together with Ladrillero, Skyring, Kirke, Ibar, Bertrand, and Otto Nordenskjold, that completely intersect the Cordillera, against the simple assertion of Señor Barros Arana, as Chilian Expert, who maintains the contrary, without giving the grounds for his belief.*

P. 27.—“We were slightly north of Disappointment Bay,” says Señor Ibar, “near Obstruction Sound. We left the Plains of Diana to the south. Facing us was the sea, a wide channel penetrating northwards, the end of which we could see; two little islands stood out from its blue surface, bare of arborescent vegetation. On the west *we saw high peaks, clad with eternal snows*, and at their base the sea which penetrated the creeks. *From that point one could appreciate the way in which the Andine chain, separated from the Continent*, was scattered capriciously among the labyrinth of islands which formed a veritable conglomeration cut through and subdivided by the network of channels of Western Patagonia.”

Further on, Señor Ibar, agreeing with Rogers, places *the Andes in the great snowy chain*. He says:—

P. 32.—“The country we traversed was slightly undulating, but the ascent of the previous day, up the high basaltic table-lands, placed us a great height above the sea. We eventually reached the summit of the last hill, and saw, spread out before us, the river Santa Cruz enclosed in its valley, the magnificent lake from which it rises towards the west, *and the Andes which form a crown of lofty peaks for it*. We were at an altitude of some 1060 metres (3478 feet). We commenced the descent and soon lost sight of the lake. We pursued our journey along a partly hilly ground covered with black bushes, the papilionaceous plants already referred to, and some other plants.

“When one is in the valley, Lake Santa Cruz is quite out of sight; *all that is visible in its direction being the snow-capped peaks of the Andes and the cone*.”

* Anuario Hydrográfico de la Marina de Chile, vol. 5, 1879, Appendix.

In the beginning of 1879 Señor Rogers accomplished a more detailed exploration of the same places, confirming his former impressions, with a more precise description.*

* Ibid., vol. 6, 1880. P. 107.—“Having traversed the Cordillera (Latorre), (1) we crossed a rivulet which, according to Zamora, is one of the affluents of the river Coilé; it had a slight northerly direction, suggesting such a connection. This being passed, a barren pampa was entered upon, in which even dog-grass was scarce, and what there was of it was very poor; the ground being full of stones made it very unpleasant for the horses.

“During the march, the Cagnol Mountains, or the Bagnales Cordillera, rose to view on the north-west whenever the horizon permitted it, and frequent squalls greatly troubled us. Numerous troops of *guanacos* and a few ostriches showed themselves from time to time.

“The pampa here consists of a succession of table-lands of vast extent, broken by gorges, which are more frequent here than in the eastern region.

P. 117.—“We greatly felt the want of a boat on the Santa Cruz, as without one it is quite impossible to properly survey the lake, and ascertain its exact dimensions. To have tried to use a raft would have been very dangerous, owing to the terrible winds which strike the lake as they descend through the Andean gorges.

P. 118.—“February 4.—The day dawned clear and calm. Before *penetrating into the Andes*, a neighbouring hill was climbed, so as to command a view of the adjacent country, and according to two barometric observations, a relative altitude of 1028 metres was obtained. From the upper part of the hill we found the following magnetic azimuths :—

Castle Hill	N. 30° W.
Malagro Camp	N. 55° E.

“From the part of the hill facing the camp, at an altitude of 624 metres, we could discern the narrow Lake *Misterio*, stretching in a tortuous way for some four miles east to west, continuing afterwards S.S.E. We observed some pieces of ice in this lake, and were curious as to whence they proceeded; we then thought we perceived a glacier at the base of the opening, which stretched towards the S.S.E. A regular west breeze was blowing, the greater part of the sky being clear. After reaching the top, we decided to keep on ascending towards a cone which was visible more to the west. The road being easy, we climbed the height, going as far as possible on horseback, and afterwards walking, until we attained the above-mentioned altitude of 1028 metres, more than 2·5 miles from the preceding point.

“We were very glad we had persevered in our ascent, as we were enabled to see some *pieces of ice emerge from another opening, which ran towards the south-west, from whence the wind seemed to come. On the south of this opening were two snow-clad peaks—one of them was, perhaps, the Stokes.*

“We had thought that Lake *Misterio* was none other than Lake Santa Cruz itself, which makes a great bend between hills of 1220 to 1520 metres height, and at the base of which a glacier is indubitably found. Was this so, or were there two distinct lakes? A problem which we had to solve.

“Our reason for climbing the height was to command a view of the country, so as to get a better idea of its configuration, and then proceed for some days along the valley of the *Rio Zamora*; but in consequence of what we saw from the summit, we changed our mind; to go along that valley would be useless, our purpose would be better accomplished by skirting Lake *Misterio* on the north until seeing the glacier or its eastern extremity. From the summit the openings seemed to have a tendency to join the one which forms the west part of the Santa Cruz, which I had followed on the first day of this month; this made us fear that our advance northward would be impossible.

“On February 1, we thought we had reached the place where the explorer Moreno says he planted his flag; but, in that case, it surprised us that he makes no mention of the two western entrances of the lake: which make the Santa Cruz much longer than what was thought.

“I suppose that the river which serves us as an outlet to Lake Viedma and which discharges into the Santa Cruz, runs through the north opening, which seems to be rather deep.

“The waters of Lake *Misterio* were of a dirty whitish colour, like those of the Santa Cruz; prominent

(1) The general table-land to the north of river Gallegos, to which the Chileans have given that name.

The region in which the Chilian Expert now puts his principal chain (en-cadenamiento) of the *Cordillera de los Andes*, Señor Rogers calls the *Pampa*. The

above them were the very crystalline waters of an extensive lagoon, separated from Lake *Misterio* by a narrow strip of land.

"From the most culminating part of the height on which we were, from whence we saw Mount C'agual, we found the following azimuths:—

Tembler Camp	. . . . .	N. 26° E.
Malogro Camp	. . . . .	N. 52° E.
Mount C'agual	. . . . .	S. 56° E.
Snow-capped cone (probably the Stokes)	. . . . .	S. 5° W. and S. 15° W.

P. 120.—"February 5.—Leaving the greater part of our baggage in the camp, with two men to look after it, we set out to skirt the north side of Lake *Misterio*. We worked very hard all day; we had to contend with a very thickly wooded mountain, with ravines and swamps, which made our advance slow, difficult, and even dangerous. We skirted the arm of the lake which runs, approximately, east to west, for more than 5·5 miles, with a width of close on two miles. It then turns slightly north through an *opening in the Andes*, through which *numerous pieces of ice of various sizes and of fantastic shapes were seen to emerge*. Another part of the lake turns towards the south for more than 7·5 miles, to terminate at the very base of the Cordillera. From the height on which we were yesterday we saw a kind of glacier at its base; but no pieces of ice emerged from that creek; those which could be seen proceeded from the opening towards the west.

"After marching for more than five hours, we perceived a beautiful glacier at the bottom of the valley, from which splendid icebergs became detached, many being of great size.

"After eight hours' heavy marching we camped in a small creek of the lake in the midst of a superb forest of oak-trees. The remains of a fire were visible along the whole track traversed by us during the day, but it appeared to be a very old one; as, by the side of the burnt trunks, there were new trees of some years' growth. When we camped we were very tired and rather out about, owing to having had to force a passage through the forest. We were cheered, however, by having seen the object of our journey, as, from the appearance of the mountains, the lake either continued towards the north, or else it needed but very little to join with the Santa Cruz. Who knows but that this same glacier is not the one which supplies Lake Santa Cruz with the pieces of floating ice, even though we did not see any in that lake this year?

"The glacier, which we called *Francisco Vidal*, was, as seen by us, some 1·5 miles wide, and increased in height, apparently lengthening out towards the west, being probably the same as the one which enters Peel Inlet. There are very lofty snow-clad mountains (perhaps from 1800 to 2100 metres) on both sides of the glacier. I think the one on the south is Fitz Roy's Mount Stokes; we gave the name of 'Rogers' to the mountains on the north.

"The forests covering the ground traversed by us to-day consist of Magellan oaks, hardwood, shrubs and many fuchsias; *huemules*, some foxes, the woodpecker, a species of parrot, and some *colibi* are found in the district.

"During the night we could hear from our camp the reverberations of the harsh sounds of the pieces of ice which broke off the neighbouring glaciers, the noise produced thereby resembling thunder.

P. 121.—"After walking nearly west for two hours, we came to the shores of the lake, in front of the Francisco Vidal Glacier, from which we were only separated by Lake Santa Cruz, which is only two miles wide at that point. It then runs N. 30° W. for over eight miles. The glacier goes towards the south-west between snow-clad mountains, but we could not see on the right, owing to its being covered with clouds; only perceiving, momentarily and at intervals, some summits.

P. 124.—"At 11 A.M. we started off with the best horses and part of the men. We skirted the broad plain which borders this part of the river Santa Cruz and which is rather swampy, but affords beautiful pastures for all kind of cattle. Nevertheless, it must be very bad in winter, the forest also being very dense. We crossed a rivulet which discharges into the lake, and flows over a stony bed, having its origin in a branch of the Cordillera some 900 metres high, which has an easterly direction.

"On the banks of a rivulet and at a short distance, we found a large perch, which caused us to think that such fish must abound in its waters. It appeared to us that this perch was similar to what we had caught in the Truchas basin, in the vicinity of the Malogro camp on the margin of the Santa Cruz.

"From the rivulet the Andes presented a magnificent spectacle, with its two openings, that of the

Tribunal will note the difference which exists between actual observation of the ground by Señor Rogers, and the affirmation of Señor Barros Araña as Expert,

Francisco Vidal Glacier, and the other situated about fifteen miles south of the latter. The panorama would have been complete, had it not been for the clouds hiding the *principal peaks of the Cordillera*. The glacier was perfectly blue—a proof, according to Darwin, of its advanced age. Encina Cove did not seem to terminate in a glacier, as we had previously supposed, but in a great deposit of snow.

P. 125.—“*February 14.*—The morning dawned cloudy and calm. We advanced towards Carlos Hill, situated near Lake Santa Cruz, which was more than five miles away; to all appearances it seemed that the ascent would not be very difficult; but, in attempting it, we found it very heavy. The hill consists almost entirely of rock, dotted with patches of herb and light briar on its eastern side. The opposite side is entirely bare of vegetation.

“Once on the top of Carlos Hill, the sky was fairly clear, which enabled us to contemplate a *beautiful view of the Andes*. At our feet was the majestic Lake Santa Cruz with its two coves penetrating precipices which were covered with trees in the lower and bare on the upper parts. The Téupanos Passage or channel (of Moreno) and the Encina Cove remained in sight.

“The lofty Andes, of various and fantastic forms, visible from Mount Payne on the south as far as N. 69° W., at which point they were lost to sight. The imposing Mount Stokes was covered with snow, scarcely any of its parts being visible. The north creek of Lake Santa Cruz, according to appearances, continued some five or six miles to the N. 79° W., afterwards taking a somewhat northerly direction.

“On the top of the slopes which terminate at the margin of the lake, a portion of the glacier was seen from which some icebergs descended, which, from there, moved towards the broad part of the lake, where they joined others.

“At the end of Encina Cove, another glacier was also seen; but we saw no icebergs emerge from it, which led us to suppose that the glacier does not descend as far as the waters of the lake. On the southern part of the hill, and towards the east, some sort of a pampa, abounding in swamps, was seen. The hills trending towards the east, started from the end of Encina Cove and the western hills slightly more to the south; but we could not distinguish their termination.

“We found it rather cold on the summit of the hill, with a fresh westerly breeze, it being observable that at the foot of the hill it was quite calm, and that the waters of the lake were perfectly smooth.

“The river which connected Lake Viedma with the Santa Cruz, called Leona, by Moreno, the Argentine explorer, could not be distinguished, from which it may be supposed that it falls near the glacier, which would indubitably assist in transporting the icebergs which descend along this creek.

“From the upper part of the Carlos Hill, we took the following magnetic azimuths:—

Source of the river Santa Cruz	N. 55° E.
Castle Hill	N. 57° W.
The Northern Creek (glacier)	N. 79° W.
Fracaso Creek	S. 75° W.
Encina Creek (glacier)	S. 15° W.
Mount Payne	S. 3° E.

“The relative height of Mount Carlos above the level of the waters of Lake Santa Cruz is from 905 to 910 metres, or say an altitude of from nearly 1035 metres. In the direction of the Fracaso opening and in the same Cordillera, we saw, at intervals, a lofty conic-shaped peak, which exceeded the others and even Mount Stokes in height; but, owing to the heavy clouds which covered it, we were unable to fix its azimuth.

P. 132.—“At 3 P.M. we camped on the banks of a river known by the name of Vizcachas, owing to its rising in one of the hills in which these small animals (a kind of hare) abound.

“Shortly before reaching the point we had chosen for camping, we saw from the summit of one of the hills, the rugged Mount Cagual, which was near us on the west. A little to the south and slightly further away, was the beautiful Mount Payne; and still further south and in the distance we discovered other snow-clad mountains.

“The Las Vizcachas river or rivulet flows towards the Cordillera, and, I am assured, it is neither an

which is entirely lacking in foundation. Señor Rogers uniformly gives the name of "Andes" or "the Cordillera" solely to the snowy chain which is really the range

affluent of the Coilé nor of the Gallegos, but joins two others to form a larger one which runs westwards until it discharges into a rather large lagoon near Pape. . . .

"Close to the camp, and some fifteen or twenty metres above the level of the river Las Vizcachas, fossils were found in great abundance, consisting of *Ostrea maxima* which, as we have already said, is found in many other localities.

"The wind veered round to the north, blowing in very heavy gusts, and imperilled our tents, and was generally accompanied with a little rain or snow. After nightfall, we saw a kind of lightning on the west; but we did not know whether to attribute it to a tempest in that part of the Cordillera or to some other cause. The flashes succeeded each other at lengthy intervals.

P. 133.—"February 28.—A beautiful day dawned; the horses were brought, the camp struck, the party was sent on in advance, whilst the writer and Señor Donoso took the meridian altitude of the sun, which gave us lat. 50° 51' 21".

"We then journeyed towards what they call the Entrada á los Bagnales, that is to say, the pass through which one enters the region where the wild horses graze. The direction followed was approximately W.S.W., crossing many hills, from whose tops the broad valley of the Coilé was seen.

"On the west was Mount Cagnal, a hill of no great altitude, devoid of snow, which lies on the east of the Andes and separated from them. Then came the snow-clad Payne, of imposing appearance, and more to the west a chain of mountains also snow-clad.

"The river Vizcachas, which we crossed, makes a curious bend towards the east, more to the south of the camp, to subsequently flow to the west, where it discharges into a great lagoon, as we verified.

"The country traversed to-day contains some valleys with pasture, but the hills were very poor.

"We observed immense herds of guanacos. On our left we passed various lagoons; one of them was salt, but of slight importance.

"At 4.30 p.m. we camped on the banks of a small creek, having Mount Cagnal on the north, 25° W. The stream flows through an extensive and grassy dale, through which also runs a river which joins the Vizcachas. This is the compulsory halting ground of the Patagonian Indians when they come in search of Bagnales horses.

"The district seemed a very good one to us: but on one perfectly calm day we were attacked by a great number of sand-flies, which made us feverish, and would not even permit us to eat.

"Shortly before reaching the camp two lagoons were seen, one rather large; the peasants assured us that west of Payne there were also some large lagoons, one of them a salt one.

P. 134.—"March 2.—At 10 A.M. we commenced our march towards the interior (the west). We then crossed a rivulet which seemed to proceed from the Cagnal Hills, and, according to reports, joined the Vizcachas. Further south we climbed some low hills, which were everywhere full of holes bored by *eururos*, rendering our progress difficult. We then traversed a sort of ravine. On the north lay the Bagnal and other mountains, which, separated from the former by deep gorges, had a west direction. The path became obstructed by dense forest in measure as we advanced towards the west; the upper parts of the hills were barren. On the south lay a low hill, which commenced on the western side of the rivulet where we were camping, and continued westward, having a valley on the north which, but for slight curves, runs east to west for some fifteen miles. The breadth of this valley varies between two and five miles, and it is the place where hunters and Indians go to catch the *bagnales*.

"In the course of our march we found a lot of skeletons of wild horses scattered all over the region; they were, perhaps, the remains of those animals which had been caught, but which the Indians or hunters had been unable to break in.

P. 135.—"Our peasant, Zamora, told us that when he discovered the *bagnales* the valley to which we have referred was literally covered with them, and "looked like a moving mass." Upon this occasion we did not see a single one, so great had been the quantity captured; we found fresh marks and tracks, which proved their existence. Lately the Cacique Papon, with his Indians, caught some 100 *bagnal* horses. The remainder retired to the higher parts of the Cordillera, and more to the south.

"We continued along the valley, crossing various streamlets, or rather water-courses, one of which we

to which the name belongs. Between February 22 and March 22, Señor Rogers explored the region comprised between the rivers Coilé and Vizcachas. He

noticed flowed underground for a considerable distance, having its origin in the gorges formed by the hills on the north side, about which we have already spoken.

"At 3.30 P.M. we camped in the western extremity of the valley, pitching the tents in a picturesque spot between some leafy oak trees; we were forced to dig for water for ourselves and our horses, but did not experience much difficulty, as the spring was close to the surface. The pasture here was magnificent, as was the case in the greater part of the valley, making the neighbourhood a very appropriate locality for the raising of horned cattle. There are also a few small lagoons, with rather swampy edges, in which a variety of ducks and beautiful swans abound.

"On the west were mountains already forming part of the Andes. Having crossed a rivulet, which is the third which connects with the Vizcachas, and the one in the Mosquito Valley, there was a deep gorge on this side, a circumstance taken advantage of by Zamora and others, years ago, for the erection of a strong enclosure into which the *baguales* were driven, and, once inside, they were easily caught; but now, they know the trap, and it is almost impossible to get them to enter. *Huemules* abound in the forest, and can be caught by balls or by dogs.

"Before camping, we had a few showers; directly we had pitched the tents, repeated peals of thunder were heard, accompanied by furious squalls of wind, which kept on all through the evening and night; but owing to the sheltered position chosen for the camp, we were not inconvenienced.

P. 136.—"March 5.—Sky clear, weather calm; but, as the day advanced, a regular wind, accompanied by showers of rain, set in. Nevertheless, so as to lose no time, the ascent was decided upon; we made towards the mountain which stood N.N.E. desiring to command a view of the country and select an appropriate site for the ascent of Mount Payne.

"We went forward on horseback in spite of the road being heavy and difficult owing to the thick forest, but the greatest trouble was caused by the fallen branches, which impeded the advance of the horses. Clearings, in the form of small squares, occurred at intervals, in which, as well as in the forest, forage abounded. During the march, we found abundant traces of the existence of a number of *baguales* horses.

"After several halts we reached the unwooded part, which we skirted slowly so as to get up more easily. The summit terminated in sharp-pointed rocks, impossible to climb; on one side was a deep ravine, on the escarpments of which variegated streaks were visible, but it was quite impossible to get to them without personal danger.

"It was a very squally day, and we were unable to see the *snow-clad summits of the Andes* except in a very indistinct way. We noticed a labyrinth of ravines formed by small mountains between the larger ones: they contained lagoons. Mount Payne lay on the S. 25° W. some ten miles away; there was water on the south-east of it which the peasant Zamora assured us was a river flowing west, and that there was a lake beyond Payne. It was impossible to see the lagoon into which the river Donoso discharges.

"The Baguales Valley had the form of an ellipse, its greater diameter being from east to west more than fifteen miles. Its smaller diameter was estimated at five miles.

P. 137.—"March 6.—The day opened badly, with squalls of rain; we, nevertheless, commenced our preparations for the journey, with the certainty that it would be the last day we should have for mule transport in marching towards the interior of the Andes.

"As a matter of fact, at 9.30 A.M. we were *en route*; we first took a southerly direction, climbed a hill, skirted the lagoons in the vicinity, in which ducks, *canquenes* and swans abounded in large numbers. After descending the hill we came to a rivulet which joined the river Donoso; we followed its course, which wound along the slope of the mount, which was a heavy hill, cut by some ravines, difficult to cross, which, added to the holes bored in the ground by the *eururos*, made the route very rough.

"Besides this, the weather turned rainy; but we nevertheless continued our journey. At 12.30 P.M. we found a convenient spot for crossing the river; but it cost us a good deal of labour to get down and climb up its banks. We advanced towards Mount Payne by following in the track made by the *baguales* horses; on the left, we passed a lovely and most picturesque lake surrounded by lofty hills, wooded on their upper part. We then climbed a lofty hill, to again descend, following a route which compelled us to make frequent turns in order to avoid tracts of dense forest.

"From the summit of the hill we descried a river which, emerging from the Cordilleras situated on

notes that the Vizeachas river or rivulet flows towards the Cordillera, "and I

the north of Mount Payne, flowed round its slope on the west and south. According to Zamora, it discharged into a lake on the south of said mountain. After a certain amount of toil, we reached the banks of the river, and we were surprised at its volume, which we found was little less than, or even equal to, that of the Gallegos. The whiteness of its waters gave us the right to call it the *Rio Blanco*. It ran along a bed of open veins, in a very circuitous manner: in some parts its windings forming right angles, displaying in others escarpments of bare rock, making the bed of the river a veritable valley. At some points, the bed extended, and it narrowed in one place to form a waterfall seven metres high, the noise proceeding from which was heard at a great distance; and the kind of white cloud formed by the splashing of the water could also be seen.

"At one of the places where the bed of the Blanco widens out, we tried to ford it; but were prevented doing so by the force of the current and the depth of the water. Finally, the nearer we approached Mount Payne, the more we became convinced that its ascent would be extremely difficult, if not impossible; as its slopes were very steep and its lower parts were very densely wooded. It seemed to be impossible to reach its summit, as it was surmounted by a sort of vertical column which only permitted a very small quantity of snow to remain on the summit of the mountain.

"We camped at 4.30 P.M.—Mount Payne lying S. 65° W. on the bank of the river which flowed at its base. The horses were in a very bad state, owing to the long ride and to the rough nature of the route. The never-ending plague of sand-flies greatly worried us, there being an extraordinary number of them in the camp.

"At this point the river Blanco forms a large island which bifurcates it into two branches, a little more to the north of the camp.

"*March 7.*—Very early in the morning we had a very successful hunt. The day remained cloudy; squalls of rain alternating with clear skies; but it was impossible to make use of the sun to take the latitude. It appears that the lake into which the Rio Blanco discharges, stretches a good distance westwards; Zamora, who is the person who has penetrated furthest into the country, did not determine its end; so that should it stretch almost to the western channels, THE ANDES WOULD ALSO BE CUT IN THIS PART.

"The hills, both in this and in the preceding camp, show a formation of conglomerated pebbles fixed together by a tenacious element, which demonstrates that the present 'relief' is due to an upheaval of the ground (the geological specimens brought by Señor Rogers have been deposited in the collection of the University of Santiago).

P. 140.—"*March 9.*—We prepared for the journey with one single load; but we waited till midday to determine the latitude, which we found to be 50° 58' 43" at the camp.

"We then started towards the west, and in as straight a line as the sinuous nature of the country permitted. The ground was covered with some prickly bushes, which were very troublesome to the horses. We afterwards described the lake into which the Rio Blanco discharges; it is narrow and very tortuous, the hills causing it to take this shape; it stretches a good way westward. We passed by a labyrinth of hills and ravines, the ground being covered with stones, making travelling very difficult. There was a large lagoon on the south side, of a very serpent-like shape, narrowing in places to a mere thread of water between shores. This lagoon was not less than 7.5 miles long; owing to its shape, we called it Lake SERPIENTE.

"The snow-clad Cordillera could be seen, as well as a great glacier—on the north side of Lake Angosto—which appears to stop at the base of Mount Payne on the north side. The ice of this glacier was for the most part covered with snow, and it was of such a height that the snow-capped peaks appeared as though they were merely rising out of a heap of flour.

"Ravines and hills succeed one another with great frequency, many lagoons existing in the ravines. Whenever we climbed a hill, we saw a succession of the same curiously shaped lagoons on all sides. We camped on the shores of one of them at 5.30 P.M.

P. 140.—"The Payne lay approximately north-west of our camp. The view we had of it showed us that its ascent is impossible. Its sides are very rugged and steep.

"The Serpiente lagoon is not known to have any outlet; it receives one or another small rivulet, and, consequently, its waters are very bad, brackish and of bad flavour.

"In passing through the prickly bushes we set fire to them, in various places, for the purpose of clearing

am assured," he says, "it is neither an affluent of the Coilé nor of the Gallegos,

a more practicable route for our return, and we could see from our camp that the fire had spread considerably, as we observed the reflection of the flames a long way off.

"March 10.—A calm morning, owing to which the smoke from yesterday's fire lay along the whole horizon, preventing us from seeing far, as it was like a thick clond.

"We started shortly after 9.30 A.M. The route got much worse; great stones, very dangerous for the horses, and very lofty and difficult hills which we had to climb and descend at every instant, made the path a perfect labyrinth. We then came in sight of the lake into which the Rio Blanco discharges, on the north margin of which rose the imposing Mount Payne. On the near side were more or less low cliffs. Its direction was approximately south-west and it was very tortuous; the colour of the water was similar to that of the river, though less white. No *baguales* skeletons were found towards the interior; they all went towards the east, and no animals frequent that part of the country, save the *huemules*, which are very scarce.

"We continued our journey towards the Cordillera, hearing the many murmurings made by the water-courses, noticing shortly afterwards that the part of the lake in which the Blanco discharges is of a higher level than the other; we found that the water flowed from the former to the latter, running through a narrow gorge, and forming continual waterfalls which produced the murmurings we had heard.

"Another portion extended towards the south for four or five miles, and was that which was seen in the centre of a depression; another part extended S.S.W. for a similar length. Numerous eyots adorned the waters and the fantastic creeks formed by the inflexions of the shore. The taste of the lake water was insipid, and from it we could see some snowy peaks, interrupted towards the south, and lower than the Payne.

"After advancing with immense labour for some four hours on the worst of roads, in which, at times, we had to make a passage for the horses between the rocks, and finding that it grew worse and that the horses were done up, I determined to return; but before doing so, I climbed a hill, from the summit of which I saw that the waters of the lake extended towards the south where a snow-capped peak was found, forming, as it were, breaks on both sides.

"Zamora informed me that the river, supposed to proceed from Lake Donoso, discharges into the lake we saw before us.

"For my part, I believe that the western channels of Patagonia should be found within a very short distance of this lake, its similarity to the channels on the west being worthy of note.

"Mount Payne, to which we were very close, consists of a single mass, but half-way up it rises into three peaks, the central being so steep that, except in a few spots, snow cannot rest on it. The hills seen towards the west were very low.

"On the hill we were climbing we found the conglomerate already referred to, at times consisting of enormous stones.

"Patches of forest existed only in the ravines, and vegetation is only found where there is water.

"The smoke caused by the fires we had made and the fogs prevented us having an extensive view, and it was not possible to wait for better weather in such an unsuitable spot.

"I might observe here the wisdom of carefulness respecting fires, as they may become prejudicial to the traveller.

"We could but admire with awe the stupendous work of nature in forming such a "relief" and Cordillera as that which we had before our eyes, and I greatly regret that I possess such slight geological knowledge, which prevents my describing, as I ought to, so remarkable a country, in order to throw some light on the phenomena produced there.

"It was not without regret that we commenced our return, but we were compelled to do so; time pressed, owing to the condition of the horses, which prevented our advancing further unless we continued for several days on foot. We moved towards the east, keeping Lake Serpiente on our left—that is to say, northwards—and crossed it at a very narrow passage afforded by it. We camped on the north of it at 4 P.M.

P. 144.—"The river Donoso makes a bend there towards the south-east, skirting some hills, about fifteen miles beyond the camp, before discharging into the lake of the same name. The waters of this lake are of rather a whitish colour. It is some four or six miles in breadth; its form is very irregular; there are some islands in its eastern part. It extends towards the S.S.W. and W. for a distance which it was impossible to estimate. An excursion, for the purpose of seeing its extremity, was proposed, but we found that it would be impossible. On the north it presented very broken cliffs and hills; on the south it was more or less the same

but joins two others to form a larger one which runs westward until it discharges into a rather large lagoon near Pape." *

He observed likewise that the Cerro Bagual, situated to the east of Cerro Payne, *is to the east of the Andes and separate from them.* According to this intelligent explorer, *the Cordillera de los Andes begins in the Cerro Payne, towards the west*, so that, he says, if the lake into which the Vizcachas empties itself is continued westwards to the neighbourhood of the western channels, "*the Andes would also be cut in this part.*"

In his excursion to the west he reached the glaciers in a narrow lake, doubtless that known as Lake Hauthal, which has its origin in the Cordillera Nevada.

"I am of opinion," he says, "that the separation between the waters of Lake Donoso and the western channels must be very slight, and also that its outlet must take place in their direction. The river carries a large amount of water in flowing to the lake, and does not return to the pampa, nor does it go to the river Gallegos as far as is known. Neither does the Coilé serve as its outlet, for, if that were so, the latter would be much larger than the Gallegos."

and very wooded. All this convinced us that we could not advance much farther beyond what we could see, unless we spent many days' hard work across a very bad country. Our time had expired, and the horses were nearly worn out.

"I am of opinion that the separation between the waters of Lake Donoso and the western channels must be very slight, and also that its outlet must take place in their direction. The river carries a large amount of water in flowing to the lake, and does not return to the pampa, nor does it go to the river Gallegos as far as is known. Neither does the Coilé serve as its outlet, for if that were so, the latter would be much larger than the Gallegos.

P. 145.—"March 18.—It was cloudy at daybreak; we started towards the east in good time, and being short of provisions, were obliged to select a place abounding in game. We continued on the look out for the basin of the Vizcachas, slightly to the south of the previous camp on the same river. We crossed a pampa, barren at the commencement, but towards midday a number of ostriches and numerous herds of *guanacos* were seen.

P. 146.—"March 20.—The morning was fine, with a north-east breeze. Señor Donoso, accompanied by Zamora, went out to look for fossils, going in the direction of the same place that they were at on January 21, in the ravine of the Leon and the river Vizcachas.

"The meridian altitude of the sun was taken at midday, showing the place to be in lat. 51° 00' 01".

"March 21.—We started off at 9.30 A.M. in a more or less south-east direction. We traversed a poor country, with scarcely any grass and devoid of trees, but it abounded in *guanacos* and a great number of ostriches and foxes; we caught some of each. The dales were dry; we only observed the beds of a few small streams, and also those of various small waterless lagoons.

"We crossed one of the small tributary streams of the river Coilé, in the dale of which green pasture was seen, and *canquenes* could be counted by the thousand.

"The ground covered was very similar, save for the few short clusters of hills; but it was always easy travelling for the horses. At 4.30 P.M. we encamped at the side of the Redonda Lagoon, at the same spot as on the previous journey. There were no signs of anyone having camped there since, as we found even the firewood which had been left behind on our first journey. The lagoon abounded with ducks and swans."

* The discovery of the fossil *Ostrea maxima*, similar to that which is found in the pampa and in the estuary of the Rio Santa Cruz, etc., was one proof more that the region of the Vizcachas does not correspond with the Cordillera de los Andes.

At no time did it occur to Señor Rogers to say that he was within the Cordillera de los Andes notwithstanding his having explored a region relatively far distant westwards from that *in which the Chilean Expert places the western slope of the principal chain of the Andes*; he only reached to the foot of its eastern slopes, so that the whole region which he describes is likewise on the east of the Cordillera, when speaking of lakes and plains. The Chilean Expert claims, nevertheless, that his line follows the western slopes (*falda*) *of the principal chain* (*encadenamiento*) *de los Andes*.

7. RESULTS TO BE DERIVED FROM THESE EXPLORATIONS.

All the publications which have been mentioned were perfectly well known in Chile, and certainly to Señor Barros Arana, who negotiated the Treaty of 1876 and 1878, and co-operated, as he affirms, in concluding that of 1881. Therefore it can be confidently established that when Articles 1 and 2 of that Treaty were agreed upon the universal belief among the statesmen and men of science of Chile, and of the Argentine Republic was, that in accepting the Cordillera de Andes as the boundary, they accepted the natural, the traditional, and the most rational boundary. Also that when they agreed that the line should pass along "the most elevated crests of the said Cordilleras* that may divide the waters, and should pass between the slopes which descend one side and the other," they placed the boundary line on the high crest of the Cordillera, i.e. of the principal chain which divides the greatest part of the waters which form the regular or normal hydrographic basins situated west and east of that high crest, and which are separated by the "vertientes" or "laderas" (slopes) of the range agreed on, giving to these words the true meaning which was then given by Señores Pissis, Domeyko and Barros Arana, high authorities in Chile, and has been given since by Señores Bertrand, San Roman, Muñoz, Sayago and Steffen, whose opinions are of not less value in Chile.

According to the former authorities, the eastern slope (*ladera*) was bounded in the northern region by the longitudinal depression of which the valley of Uspallata forms part, and in the south by that which stretches to the west of Lake Argentino or Lake Maravilla and of Last Hope Inlet. According to some of these authorities, the Cordillera was cut before reaching the 52nd parallel of S. lat., although extending as far as Cape Horn, beyond the Straits of Magellan.

* It is said "Cordilleras" probably for distinction between the Cordillera of Chile, north of the parallel of 40 and the Cordillera of Patagonia south of that parallel.

By those men of science as well as by those who framed the Treaty of 1881, the dividing line in the crest which separates the waters of its slopes (*vertientes*), or the line of its watershed, was a continuous line, except for the occasional intersection by rivers from east to west. The dividing line of the waters from the summit of the Cordillera de los Andes, was, according to them, a line identical in nature with the watershed of the Cordillera de la Costa, cut similarly at a number of points, since after the explorations of Ladrillero and the other travellers quoted, no one was ignorant that this feature existed in the whole of the Andes.

The Argentine Republic and Chile sought by means of the Treaty of 1881 to put an end by agreement to the boundary question which had been the subject of discussion for so long a time, and believed that by the compromise so concluded, they would succeed. This is a fit opportunity to repeat the observations made by Señor Valderrama, Chilean Minister for Foreign Affairs when the Treaty was signed :—

“But above all I must say that from the 23rd of July, 1881, after the failure of many attempts at a settlement of the old boundary question, Chile and the Argentine Republic gave each other the hand of friendship *over the majestic Andes*. I have not ceased to cherish the ardent desire that their friendship may be strengthened, to the benefit of the peace and glory of two great Republics, called, in a not distant future, to the highest destinies in the work of civilising the American Continent. . . .

“The Argentine Republic, so advantageously situated, looks towards the Atlantic; there she will fulfil the high mission which belongs to her, *while Chile fulfils hers on the shores of the Pacific*. The two have different spheres of action, *different lines of activity*, and, *like parallel lines, they cannot, and ought not, to come into collision.*” *

The line proposed by the Chilean Expert, after a lapse of seventeen years, overthrows completely this fair and sound agreement between the two nations, and sets at naught the boundaries of the Treaty, and attempts at the same time to interfere with the bulwark provided by nature. The true dividing line, the only one possible, is in the crown of snow on the Andean crest, and by no means in the depressions and table-lands of Patagonia. Any attempt to depart from this line would be to ignore both the letter and spirit of the Treaty. The gorges or deep gaps which cut through the main range of the southern part of the Cordillera de los Andes are more difficult to cross than the highest pass of the north. Narrows and tremendous torrents, cascades and glaciers, forbid all access by these, and in every sense the crest of the main chain is the best and safest barrier between the two countries.

* *La Cuestion de límites entre Chile y la República Argentina*, by M. Valderrama, Santiago de Chile, 1895, pp. 8 and 9.

CHAPTER VII.

Summary—1. ORIGIN OF THE BOUNDARY QUESTION.

2. THE FRONTIER LINE ACCORDING TO THE TREATY OF 1881.
3. DIPLOMATIC NEGOTIATIONS PRIOR TO THE TREATY OF 1881.
4. NEGOTIATIONS OF THE TREATY OF 1881.

1. ORIGIN OF THE BOUNDARY QUESTION.

UP TO 1843 Chile had given no reason for any one to think that she would ever depart from the Agreement of 1826, mentioned in Chapter I., and appeared be satisfied with the boundaries of her territory as laid down therein.

Documentary evidence exists in support of this statement. For instance, on the occasion of a proposal being made for the establishing of a service of tug-boats in the Straits of Magellan, the Governor of Chile appointed in 1841 commission of three statesmen of high repute to inquire into the matter, and these commissioners in drawing up their report affirmed that the Cordilleras de los Andes were marked out as the eastern boundaries of the territory, and accordingly that only the region of the Strait on the Pacific side situated to the west of the said Cordilleras, which stretch away to the north, belonged to Chile and that *the other part* belonged, *of course*, to the Argentine Republic.

In 1841, Mr. George Mahou having solicited from the Government of Chile the privilege to establish a line of steam tugs in the Magellan Straits, that Government appointed a Commission to report thereon, composed of Don Santiago Ingran, Don Diego Antonio Barros, and Don Domingo Espiñeira. Their Report says :—

“The undersigned members would be afraid of misplacing the confidence reposed in them by you, in entrusting them with this matter, if they did not state their doubts with reference to the right of the Government, to grant the privilege, in the manner requested, for the navigation of the whole straits, AS IT CANNOT WHOLLY BELONG TO CHILE. *The Cordilleras de los Andes are defined as being the boundaries of Chilean territory on the east, and the Straits of Magellan belong to this country, from said Cordilleras as far as the western mouth. The other part belongs of course to the Argentine Confederation.*”

It is to this application that may be traced the initial cause of the wide question of boundaries, restricted to-day, fortunately, to some few points of detail, and confined within limits which have been already agreed upon. That application, in fact, directed the attention of the Government of Chile to the south, and resulted in the decision to colonise a part of the land in the neighbourhood of the Straits of Magellan. For that purpose, an expedition was despatched, which, on September 21 of the same year, landed at Puerto del Hambre, in the Peninsula of Brunswick, and took possession of the Straits of Magellan and its territory, in the name of Chile, to whom it belongs, according to the document concerning the occupation, and as declared in Article 1 of the Political Constitution.*

The Article of the Chilian Constitution already quoted stated nothing of the kind. The Argentine Government would have protested if Chile had asserted in her Constitution her jurisdiction over territory to the east of the Cordillera. The very opposite to this was established by the commissioners, who stated, a few months before, that the region of the Magellan Straits, east of that range, belonged to the Argentine Republic. This country was at that moment under internal and external difficulties, and was, therefore, unable immediately to repel the occupation of the Straits. Nevertheless, the Government of Buenos Aires, on December 15, 1847, sent a protest to the Government of Chile, in which they also proved that Chile had no right to occupy the Strait which, with the adjacent territories, belonged to Argentina. In this communication the Buenos Aires Government also expressed their willingness to produce their titles, and invited the Chilian Government to present the documents which justified their action.

The protest stated—

“The great range of the Andes has bounded the territories of the Argentine Confederation, and that natural boundary has been always recognised to the Republic of Chile. The Argentine territory begins at the eastern summit of the range, which forms the boundary through its whole extent as far as Cape Horn. The fort of Bulnes being situated in the peninsula indicated, its geographical position shows that it occupies a central part of Patagonia, and, therefore, by the establishment of this settlement, the integrity of the Argentine territory and its full dominion in the lands which the Straits comprehends, from the Atlantic to the Pacific, have been destroyed, since the Cordillera de los Andes, the

* Note of the Minister of Foreign Affairs of the Argentine Confederation, to the Minister of Foreign Affairs of Chile, December 15, 1847.

boundary recognised by the Republic of Chile, reaches to the opening of the Straits into the Pacific." *

The Government of Chile made an ambiguous answer to the Argentine protest, and the Argentine Government replied in their turn, and both commenced to prepare for the discussion of their respective titles.

At the same time, there had arisen difficulties between the two countries, respecting the right to some valleys of the Cordillera in the province of Mendoza, but those difficulties were concerning districts in the Cordillera itself, and were not so important as the serious and extensive claims that have since been advanced to districts east of that range, and altogether outside of it.

The Government of Buenos Aires lost no time in dealing with the matter, and entrusted the task of collecting historical evidence first to Señor Pedro de Angelis, and afterwards to Señor Dalmacio Velez Sarsfield. Chile confided a similar task to Señor Miguel Luis Amunátegui. Diplomatic communications were exchanged, but nothing definite arrived at, until January 31, 1856, when both countries signed a Treaty of friendship and commerce in which it was agreed that—

“Both the contracting parties acknowledge as boundaries of their respective territories those they possessed as such at the time of their separation from the Spanish dominion in the year 1810, and agree to postpone the questions which may have arisen or may arise regarding this matter, in order to discuss them later on, in a peaceful and amicable manner, without ever resorting to violent measures, and in the event of not arriving at a complete arrangement, to submit the decision to the arbitration of a friendly nation.”

This Treaty insured mutual respect for the rights of the two countries over the whole of their territories, as they existed at the time when they became independent of the mother country.

All the discussions, then, posterior to the Treaty of 1856, were to turn exclusively on the question whether or not, the original colonial titles conferred a right over the areas in question. The Argentine Republic bound herself to respect the title of Chile to all the territories possessed by that country in the year 1810, and, on the other hand, Chile bound herself to respect the title of the Argentine Government to all those territories which belonged to the Argentine Republic (“Vireinato del Rio de la Plata”) at the same date. The only

* The colony was called “Bulnes,” and was transferred six years afterwards to a position some miles further north, and named “*Punta Arenas*,” or *Sandy Point*.

difficulty, therefore, that could arise, according to the Treaty of 1856, would be in determining definitely what were the original limits of the respective countries, that is to say the *uti possidetis* of 1810. The Argentine Republic relied on her title, knowing that it was clear, and the matter was limited to the inquiry as to the true geographical situation with respect to the Straits of Magellan, and to the colony of Punta Arenas, or Sandy Point.

2. THE FRONTIER LINE ACCORDING TO THE TREATY OF 1881.

The discussion having been adjourned by common consent in 1856, was renewed, on the initiative of Chile, in 1865, and continued under various forms until 1881. During the whole of its progress, the Argentine Republic contended that her western boundary from north to south was the Cordillera de los Andes, and that, in consequence, she had dominion over all the territory eastward of the crest of the Cordillera, the greater part of the Straits of Magellan, and the whole of Tierra del Fuego. Chile on her part accepted the natural boundary of the Cordillera to a great extent, but maintained that this boundary did not rule in the southern part of the continent; that in Patagonia the territories on both sides of the Andes were Chilean from the Pacific to the Atlantic; that the Straits of Magellan were Chilean; and that Tierra del Fuego was also Chilean.

This Chilean claim was in complete discordance with the boundary established in the Chilean Constitution and in the Treaty agreed upon between Chile and Spain, and was constantly resisted by the Argentine Government, but it gave rise to long discussions, to several projects of agreements, to many tentatives of projected arbitration, and finally to preparations for war between the two nations.

The negotiations initiated by the Ministers of the United States of North America accredited respectively to the Argentine and Chilean Governments, led finally to the solution sought for, and on July 23, 1881, was signed the definitive Treaty, whose Articles 1 and 2, in their essential part, state—

“Art. 1.—The boundary between the Argentine Republic and Chile from north to south as far as the parallel of lat. 52° S., is the Cordillera de los Andes. The frontier line shall run in that extent along the most elevated crests of said Cordilleras that may divide the waters and shall pass between the slopes which descend one side and the other. The difficulties that might arise from the existence of certain valleys formed by the bifurcation of the Cordillera and in which the watershed may not be apparent, shall be amicably settled by two Experts, one to be named by each party.”

“Art. 2.—In the southern part of the Continent, and to the north of the Straits of Magellan, the boundary between the two countries shall be a line, which, starting from Point Dungeness, shall be prolonged overland as far as Mount Dinero ; thence, it shall continue westward following the highest elevations of the chain of hills existing there, until it strikes the height of Mount Aymond. From this point the line shall be prolonged up to the intersection of meridian 70° W. with parallel 52° S., and thence it shall continue westward, coinciding with this latter parallel as far as the *divortium aquarum* of the Andes.”

By this compromise the natural boundary of the Cordillera de los Andes in its predominant crest was definitively recognised, and the boundary determined in the Constitution of Chile became thus, in agreement with the Argentine laws, the international division between the two countries.

The boundary thus fixed in 1881 is in the “Cordillera de los Andes,” and this constitutes the limit to remain at all events “immovable” between the two countries. This fact being finally settled, it is, therefore, beyond all dispute ; and it is only when differences of opinion arise between the Experts as to the localisation of the line within the Cordillera de los Andes that arbitration is to be resorted to. The frontier line between the Argentine and Chilean Republics is to be always *within the “Cordillera de los Andes”* and not outside of the said Cordillera.

Moreover, the boundary from north to south decided upon in 1881 by the two countries, is the boundary which the two countries agreed to defend conjointly in the year 1826 ; it is also the boundary recognised by Chile in her Treaty with Spain, in 1846 ; it is the boundary claimed in the Argentine protest of 1847 ; and it is the edge or culminating line which from the Colonial times separates Chile from the Argentine Republic. According to the words of the Chilean President Bulnes, it is “the *culminating* line of the Cordillera between the slopes that descend to the Argentine Provinces and those that water the Chilean territory” ; according to Señor Tejedor, Argentine Minister for Foreign Affairs in 1872, it is the line of the crest of the Cordillera de los Andes,* and it is the line of the attempted agreements of 1876, 1877 and 1878, in which the crests of the Cordillera were to constitute the dividing line between the two Republics. This line is also the boundary according to the Chilean Ministers Lastarria, Ybañez, Alfonso, and Barros Arana, and was further considered to be the dividing line by the Argentine Government, when proposing to the Argentine Congress the sale of lands in Patagonia, after the Argentine

* Memoria del Ministerio de Relaciones Exteriores de la República Argentina, Buenos Aires, 1873.

army, in 1879, had subjugated the savage tribes which had been occupying the territory which Chile claimed from Argentina, although Chile had never taken any steps to assert her authority, or take possession of the territory from the natives, either by negotiations or by the force of arms.

3. DIPLOMATIC NEGOTIATIONS PRIOR TO THE TREATY OF 1881.

The wording of the Treaty of 1881, which fixes the boundary within the Cordillera de los Andes, formed the subject of much discussion, and an acquaintance with its origin and history is necessary in order to explain the terms therein employed.

The wording of the Treaty was agreed upon by both nations after careful consideration and with the view of making clear the meaning of the dividing line agreed upon in the Cordillera de los Andes, as traced along the most elevated crests of the said Cordillera that may divide the waters of the eastern slope of the range from those of the west.

The history of the negotiations is long and complicated, and it would be unnecessary to relate it in all its details. To explain the present controversy it is enough to indicate the clauses of the proposals for a settlement which relate to the Treaties in force.

In 1866, Señor Lastarria, Minister of Chile in Buenos Aires, initiated the negotiations for a boundary Treaty, and proposed, as a compromise, the division of the Straits of Magellan at Gregory Bay, leaving as territories adjacent to the Colony of Punta Arenas, the area included within a line prolonged from that bay to the lat. 50° S. in a due north direction. The boundary of Chile to the north of lat. 50° S., would run as far as the parallel of the Bay of Reloncavi, along the eastern base of the Andes.*

The reasons which Señor Lastarria had for proposing said line, contrary to his own opinion that the boundary was on the crest of the Andes, have been published. He stated as follows, in a communication to the Chilean Government :—

“You directed me not to accept other boundaries in the Cordillera de los Andes than the easternmost summits of that Cordillera, although the Chilean Government *has always*

* Note of Minister Lastarria to Señor Elizalde, Minister of Foreign Relations of the Argentine Republic, dated August 22, 1866, Memoria de R.E. de la R.A., 1867, p. 83.

maintained that this boundary runs along the summits of the highest ridge of the Andes, separating the course of the waters flowing down towards the east and west, upon which point both Governments *have always been agreed*, no disputes having ever arisen on the subject."

"I had proposed," he said, in another communication, "that the Cordillera boundary should start at the base of the outer eastern lines from the parallel of the Reloncavi Inlet and extend as far as the fiftieth degree, inasmuch as the Cordillera in those regions has not the same orographical features as in the centre of the Republic, and for this reason the water-courses have not a definite divide, such as even happens in parts of the province of Valdivia, according to proof obtained by engineer Frick in his exploration in the heights of Ríñihue, and to adopt as boundary line a line which should be *the continuation of that running through the central Cordillera along the highest summits*. *This being the line which in the central part of the Republic has always been acknowledged as boundary*, there is no doubt that the solution of the question relative to the meadows (potreros) of Jirones (in Talca), and the others which may arise in relation to these same intermediate valleys, must be adjusted according to it."

Señor Lastarria acknowledged, therefore, that the watershed of the Valdivia region is not found in the line of the high summit of the Cordillera de los Andes; and although he recognised that the traditional boundary always maintained by Chile followed the summits of the highest range of the Andes, separating the course of the waters on the east and west, he abandoned the said boundary in compliance with his instructions and proposed to remove it to the eastern foot of the Cordillera so as to leave its two slopes within Chile, a proposition which was rejected by the Argentine Government.

Patagonia, that is to say, eastern Patagonia, began at the top of the Andes. The Argentine Republic allowed no discussion with regard to a region which was under her sovereignty. Moreover, it having been published that this proposal insinuated claims to Patagonia, the Chilean Minister immediately considered he was obliged to show publicly that this accusation was completely false, *that the question of the possession of Patagonia had no place in the discussion, and lastly, that neither in the verbal discussion, nor in the written propositions had there been made on his part any question or any mention whatever of the territories of Patagonia, ruled by the Argentine Republic.**

The proposal of Señor Lastarria fell through notwithstanding this declaration, for the general condition of affairs at that time was not favourable to an amicable settlement.

In 1872, the controversy was reopened in Santiago between Señor Frias, the Argentine Minister, and Señor Ybañez, the Chilean Minister of Foreign Affairs.

* Memoria de R.E. de la R.A., 1867, p. 64.

In the course of the negotiations there were made the following propositions, in which, to a great extent, the Colonial boundary of the Cordillera is adhered to, although the Chilean attempts to claim Patagonia are maintained.

1. In a note of February 7, 1872, the Minister of Chile explains :—

“As Chile is in possession of a colony on the Straits of Magellan, every day more advanced and prosperous, she could very reasonably expect her right to be recognised to the portion of that region included within the Straits itself, Tierra del Fuego, the adjacent islands and the coast of the Atlantic as far as Port Deseado. From that point there might be drawn a line following the course of the river Deseado as far as the Cordillera de los Andes, so that that chain of mountains might be, in the Patagonian lands, the eastern boundary of Chile and the western boundary of the Argentine Republic.”

2. In a note of October 1, 1872, the Argentine Minister says :—

“My Government believes, as does that of Your Excellency, that the moment has arrived to put an end to this question by means of an arrangement, equitable and friendly, the more convenient as the progress made in both Republics calls them to enter into other agreements destined to foster and develop to the advantage of both the fraternal bonds which unite them. For the purpose of arriving at such an important result, I am charged by my Government to propose to Your Excellency Peckett Bay, as a point of departure for a dividing line in the Straits of Magellan, from which place the line will run in a westerly direction till it reaches *the Cordillera de los Andes*.”

3. In a note dated October 29, 1872, the Minister of Chile refused this proposed compromise, and writes that the Chilean

“Proposal can be no other than that of dividing into two parts the whole territory of Patagonia, which is the question in dispute between the two Republics, by a line starting from the Rio Diamante, which formed the southern boundary of the province of Cuyo which was separated from the Captaincy-General of Chile by order of the Spanish Government, and incorporated in the Viceroyalty of Buenos Aires. *The western boundary should be the range of the Andes, which would also constitute the eastern boundary of Chile.* But as a division of this nature would cause grave inconveniences in its practical application, the interior of this region being almost completely unknown, and from ignorance as to whether there exists suitable land for its establishment, my Government will agree that that division be determined by the forty-fifth parallel of south latitude, from the Atlantic to the mentioned range of the Andes. In this manner the Argentine Republic would acquire the greater part of Patagonia, and Chile would have possession of the southern part as far as Cape Horn.”

These quotations show the intention of the proposals, and further prove clearly that the *range of the Andes* was, all through, considered to constitute the

* See Memoria de R.E. de la R.A., 1873, Appendix.

mutual boundary between the two countries, and that the line in this range never formed one of the subjects of discussion in connection with the various attempts at an agreement. The question of longitude did not arise, as the boundary was marked by the loftiest crests of the Cordillera, from the earliest times of the Colonial epoch. It was in the question of latitude that the difficulty lay, and it was in connection with the latter that the differences of opinion existed, which have led to continual discussion ever since the year 1843.

During that discussion it was in vain that the Argentine Republic exhibited historical evidence and valid proofs of titles that could not be gainsaid : it was in vain that she produced documents of various origins and of different epochs : that she was supported by the very terms of the Chilean national hymn, by the opinion of the Chilean statesmen and geographers. The discussion was prolonged to the regret of every one, and gave rise to many projects, among which there were proposed and studied bases of arrangement, of arbitration, and of provisional settlements.

From 1876 to 1880 were initiated, at different times, negotiations which it was hoped would put an end to the dispute, but which, for one reason or another, came to nothing.

The following were the principal of these :—

1. Yrigoyen-Barros Arana (1876–1877).
2. Elizalde-Barros Arana (1878).
3. Fierro-Sarratea (1878–1879).
4. Montes de Oca-Balmaceda (1879).

The Treaty of 1881, outcome of these previous negotiations, was a compromise between the extreme claims of each country. Chile acknowledged as her eastern frontier the Cordillera de los Andes, in the whole extent, from north to south as far as parallel 52°, relinquishing her alleged rights to the whole or to any part of Patagonia. The Argentine Republic, in return, acknowledged, on her part, as Chilean territory, the neighbourhood of the Straits of Magellan (while the Straits themselves were declared neutral), the greater part of the Tierra del Fuego, and the islands to the south.

Among the first attempts at a settlement was that of 1876, when the Yrigoyen-Barros Arana negotiations were carried on. Señor Barros Arana has held the office of Chilean Expert in connection with the questions submitted to the arbitration of Her Britannic Majesty's Government; and it is, therefore,

important to take into consideration the differences which exist between his former opinions at the time when, as Chilean Minister at Buenos Aires, he took part in the negotiations here mentioned, and those which he afterwards expressed as the Chilean Expert.

The basis for this proposed agreement was the following:—

“*Points of division in the Straits:* Mount Dinero in lat. $52^{\circ} 10'$ S.

“The line shall start from this point, and follow the highest elevations of the chain of hills which extends westwards as far as the height named Mount Aymond, in lat. $52^{\circ} 10'$ S.

“From this point it shall follow a line coinciding with the parallel of lat. $52^{\circ} 10'$ S., until it reaches the Cordillera de los Andes. This line shall be the division between the Argentine Republic on the north and the Chilean Republic on the south.

“*Division of Tierra del Fuego.* From the point named Cape Espíritu Santo, in lat. $52^{\circ} 40'$ S., there shall be drawn a line southwards coinciding with the meridian of long. $68^{\circ} 34'$ west of Greenwich, which line shall be prolonged to Beagle Channel. The eastern part of Tierra del Fuego, as thus divided, shall belong to the Argentine Republic, and its western part to Chile.

“*Islands.* There shall belong to the Argentine Republic, the island of Los Estados, the islets in its immediate neighbourhood, and the other Atlantic islands situated to the east of Tierra del Fuego and eastern coast of Patagonia: and to Chile shall belong all the remaining islands to the south of Beagle Channel, as far as Cape Horn, as well as all those to the west of Tierra del Fuego.”

In this proposal the Cordillera de los Andes was to form the boundary line in the west at the termination of the line following the parallel of lat. $52^{\circ} 10'$ S., and dividing the territory belonging to the Argentine Republic from that of Chile. It is also clear that according to this proposal this southern boundary line was to follow, for a part of its course, the highest elevations of the hills which extend westward from Mount Dinero, *without taking into account the line of watershed of the various streams cutting through these hills.*

This proposal for a settlement was not approved by the Government of Chile, which insisted on their original claim to the whole of the territory of Patagonia.

On January 8, 1877, Señor Barros Arana transmitted to his Government the basis of another agreement which he was negotiating in Buenos Aires. Clause sixth said:—

“From the fiftieth degree of south latitude the boundary between the two countries to the north shall be the summits of the Cordillera de los Andes, *whether fixed in the most culminating parts or in the lines of the watershed.*”

It is, therefore, clear that for Señor Barros Arana, former Chilian Minister and late Expert for that country, it was of no consequence whether he spoke of "the culminating parts" of the range, or "the lines of the watershed." To him both were confined to the summits of the Cordillera de los Andes, through which "the boundary between the two countries" was to run.

Señor Alfonso, then Chilian Minister of Foreign Affairs, shared the opinion of the Plenipotentiary in Buenos Aires as regards the line of the Andes. He only made some observations on the terminal points at lat. 50° S., and in his reply to Señor Barros Arana, on March 24, he uses these terms:—

"As regards the sixth base, that is to say to accept from now that, from lat. 50° S. northwards, the crests of the Andes should be the frontier demarcation, appears to me in every respect unadvisable. This would be to prejudge, and to settle beforehand, and by our own doing, the boundary question, to the prejudice of Chile. The fiftieth degree is situated at 30' N. from the Straits of Magellan, and we cannot agree that from there to the Desert of Atacama the Andes should be the frontier. THE ONLY THING THAT COULD BE AGREED TO IN THIS RESPECT IS, THAT WHENEVER THE ANDES DIVIDE THE TERRITORIES OF THE TWO REPUBLICS, THE LOFTIEST CRESTS OF THE CORDILLERA SHOULD BE CONSIDERED THE LINE OF DEMARCATION BETWEEN THEM." *

Señor Alfonso also transmitted to Señor Barros Arana, a few days after the despatch of this communication, a new convention.

"It consists, he said, in fixing a line to separate the possessions of the two nations, commencing at the Rio Santa Cruz as a first proposal, and as an alternative at the Rio Gallegos. This line prolonged to the Andes will be the boundary between the two Republics in Patagonia, and *the highest crests of those mountains* will be followed towards the north. An arbitration will be constituted with the exclusive object of determining the pecuniary compensation which the one Republic may owe to the other."

The instructions were thus clearly specified. To fulfil them, it was necessary for Señor Barros Arana to enter into negotiations concerning the terminal point of the Andean boundary, and to have inserted in the proposed convention that, in the section of territory in which the Cordillera should separate the two countries, the line of demarcation *should run through the highest crests*.

Señor Barros Arana was bound to devote himself, of course, to the fulfilment of the mission entrusted to him in the form which his Government prescribed.

* La Legacion Chilena en el Plata y el Ministro de Relaciones Exteriores, á propósito del folleto de Don Gaspar Toro, por J. Alfonso, Valparaíso, 1879, p. 91.

He was understood to have carried out the instructions, as is shown by the telegram which he addressed to the Minister for Foreign Affairs, May 21, 1877, saying :—

“I have arranged the bases of the arbitration and am about to draft the convention. All the points *are according to instructions*, including the character of the arbitrator.” *

Now, what was the wording adopted when complying with the instructions of Minister Alfonso to Señor Barros Arana, according to which the frontier line was to run through the highest crest of the Andes?

Article 1 of the Project of May 12, 1877, is as follows :—

“The Republic of Chile is separated from the Argentine Republic by the Cordillera de los Andes, the dividing line running along its highest points passing between the sources on the slopes that descend one side and the other.”

Although this proposed agreement was in conformity with the instructions of the Government of Chile, it was rejected by them, at the last hour, in consequence of its clauses not stating that the boundary should be marked out in the Cordillera.†

* Memoria de R.E., Buenos Aires, 1878, p. 21; La Cuestion del Estrecho de Magallanes, por M.A. Pelliza, 1881, Buenos Aires, p. 246; La Cuestion de Límites entre la República Argentina y Chile, 1881, Buenos Aires, p. 22.

† Proposed Treaty of 1877 :—

First.—“The Republic of Chile is separated from the Argentine Republic by the Cordillera de los Andes, the dividing line running along its highest points, passing between the sources on the slopes that descend one side and the other.

Second.—“There being unsettled claims by the Argentine Republic and claims by the *Republic of Chile* over the Straits of Magellan, and *certain territories in the southern part of this continent*, and it being stipulated in Article 39 of the Treaty of 1856, that in case of the Governments not arriving at the complete settlement of such questions, they will submit them to the arbitration of a friendly nation, the Government of the Argentine Republic and that of the Republic of Chile declare that, *having been unable to arrive at an agreement after a prolonged discussion* which they have carried on since 1847, the circumstances are such as those provided for in the last part of the Article cited. Consequently, the Governments of the Argentine Republic and the Republic of Chile submit to the judgment of the Arbitrator, who shall be appointed later, the following question : What was the *uti possidetis* of 1810 in the territories under dispute? That is to say, did the territories under dispute depend in 1810 from the Viceroyalty of Buenos Aires, or from the Captaincy-General of Chile?

Third.—“To solve the question proposed in the foregoing Article, the two Governments entrust the character of Arbiter *juris* to . . . The Arbitrator in this character shall decide subject to :—

1. “The Acts and Documents which have emanated from the Government of Spain, or from their authorities and agents in America, and the Documents emanating from the Governments of Chile and the Argentine Republic.

2. “If all these Documents should not be sufficiently clear to decide the questions, the Arbitrator shall have power to decide them, applying at the same time the principles of International Law.

Fourth.—“The Arbitrator shall be bound to hold as binding in order to pronounce his decision, the following rule of American Public Law which the contracting Governments accept and uphold :—

In Señor Gaspar Toro's Statement, at the time Secretary of the Chilian Legation at Buenos Aires, the following paragraphs are found :—

“Thus the question of valleys having been under discussion for a considerable time, Señor Barros Arana being instructed concerning it by Señor Alfonso, and the point having been discussed at Buenos Aires, the Commissioners in May 1877 decided one of the bases of Arbitration then agreed to. That basis drawn up by Minister Yrigoyen, transcribing the words of Bello's *International Law*, was afterwards adopted without further discussion, and became a clause of Article 1 of the Treaty of January.”

Señor Toro, whose words it may be well to quote, comments upon the article, and speaking of the watershed, states :—

“It does not appear that the drafting of Article 1 was known to Señor Alfonso before the signing of the agreement. He knew the purport and had accepted it, believing that *the crests of the Andes* should divide the two countries along the whole extent of the territories not under dispute.”

And further on he repeats :—

“*The crests of the Andes divide Chile and the Argentine Republic.* In what part? The Treaty does not specify; nevertheless Señor Alfonso has stated, as has also the Argentine Chancellery later on, that they divide them in their whole extent.” *

In this evidence which are of purely Chilian origin, are to be found the conclusions forming the basis of the Argentine interpretation of the Treaty, viz. :—

1. The Chilian Plenipotentiary inquired whether, to determine the line in the crest, he should choose the highest points or the watershed.
2. The Chilian Minister of Foreign Affairs instructed him that *whenever the*

“The American Republics have succeeded the King of Spain in the right of possession and of dominion which he held over Spanish America. There are no territories in it which can be reputed *res nullius*.”

Fifth.—“While the Arbitrator appointed is deciding the question submitted to him, the two Governments, consistently with the promise made at the beginning of the discussion at Santiago in 1872, bind themselves to maintain strictly, in the territories comprised between Punta Arenas and the Río Santa Cruz, the *statu quo* existing at that date.

Sixth.—“The two Governments bind themselves equally to defend with all their powers the territories under the *statu quo* against all foreign occupation, making such agreements as may be necessary for the fulfilment of this stipulation.

Seventh.—“They agree, lastly, to watch those territories, their coasts and adjacent islands, preventing, so long as they make no other stipulation, the exploitation of them or of part of them by public enterprise, or by individuals, *leaving to the care of the Argentine Government the part comprehended between the Strait of Magellan and the Río Santa Cruz*, and to the charge of the Government of Chile the Strait with its inland channels and the adjacent islands.”

* La Diplomacia Chileno-Argentina en la Cuestion de límites por Gaspar Toro, Santiago de Chile, 1878, pp. 225 et seq.

Andes divide the territories of the two Republics the loftiest crests of the Cordillera should be considered the line of demarcation between them.

3. In compliance with this instruction the following clause was drawn up :—

“The Republic of Chile is separated from the Argentine Republic *by the Cordillera de los Andes, the dividing line running along its highest points passing between the sources on the slopes that descend one side and the other.*”

4. The clause having been agreed to, the Chilean Minister of Foreign Affairs, and the Secretary of the Legation differ in opinion on the question whether or not they should decide the question pending relating to Patagonia, but they agree that the *crest of the Cordillera* has been established as the boundary.

With such a precedent as this, it is impossible to doubt that the Project of 1877 meant “the most elevated crests of the Cordillera” as the boundary. This was the clear and unmistakable intention of the Minister of Foreign Affairs and of the Chilean negotiator, which must be taken into exact account according to the rule of interpretation advised by Pradier-Fodéré, and adopted by the Chilean Representative at the beginning of his Statement.

Moreover, the Argentine negotiator Señor Yrigoyen has disclosed some further details connected with the Treaty and which lead to the same interpretation.

The occasion for so doing was afforded him by Señor Barros Arana. A few years ago, in 1895, Señor Barros Arana published a long article in *El Ferrocarril*, a journal of Santiago, in defence of the continental water-divide. Having doubtless forgotten the communications he had exchanged with Minister Alfonso in 1877, he wrote :—

“An attempt at a direct settlement of the boundary question in April and May 1877, having been frustrated, the negotiators, with the concurrence of their respective Governments, endeavoured to submit to arbitration the territories involved in the dispute; but they desired that the Treaty which stipulated this should contain also rules of demarcation for that part of the boundary which need not be discussed. The Chilean Minister taking his stand on traditional custom, on sound geographical doctrine and on the principles of international law, proposed that it should be defined that the boundary all along the Chilean-Argentine Andes, was the separation of the hydrographic basins, that is to say, of the water-divide between the two countries. In support of this suggestion he quoted the opinions of commentators on the law of nations and the geographical description of the Argentine Republic which had just been published by Burmeister, and which that country greatly applauded. The Chilean Minister moreover asked that it should be stated either in an article or in a subsequent paragraph, that the difficulties which might arise in the

demarcation by the existence of internal valleys in the Cordillera in which the watershed might not be clear, should be settled by experts. Señor Yrigoyen at once accepted this suggestion. Being desirous of finding some form to express this idea, he proposed to reproduce the words employed by Don Andres Bello in his *Principles of International Law*, when treating of the international boundaries of countries separated by chains of mountains."

In view of these assertions, Señor Yrigoyen was compelled to rectify the erroneous version they contained. Señor Yrigoyen was aware that no negotiator had ever spoken explicitly of the continental water-divide; he knew that although the proposed water-divide was presumably localised on the highest crest of the Andes, it was mentioned in such a vague form that it was impossible to accept it, and therefore he wanted to specify the precise details of the negotiations.

It was, of course, evident that Señor Barros Arana's memory was at fault; and this is shown by the fact that, if it be admitted that Señor Yrigoyen proposed the adoption of Bello's formula which explicitly designates the highest peaks of a chain as boundary points, it is impossible to imagine that he could wish, by such a clear sentence, to indicate the continental divide, which is on high and low crests, on mountains and plains. But notwithstanding all this, Señor Yrigoyen clearly specified the details of the negotiations in the following terms:—

"The conferences with Señor Barros Arana in 1876 and 1877 are extensively set forth in the Report dated April 15, 1877, which I addressed to President Avellaneda, and of which I previously gave cognisance to the Chilean Minister in order that if he found any error or omission he might advise me. It was published in the Report of Foreign Affairs for 1878. In that document it may be seen that we endeavoured mainly to obtain a definite arrangement; after protracted discussions we succeeded in agreeing on it, and we mutually determined to submit it to our respective Governments before signing it. The Chilean Government did not approve of the arrangement, and the negotiations came to an end. On completing that Report I wrote to the President as follows: 'Your Excellency is aware of the strictly confidential character which in concurrence with the Chilean Minister we imparted to the proposals for arrangement, for reasons which I have communicated to Your Excellency. But if it has been my duty to maintain the reserve mutually agreed upon, I must no longer conceal the essential features of the negotiation. (1) In dealing either with the compromise or with the arbitration, I have not forgotten that the incident of the ship "*Jeanne Amélie*" should first of all be settled and an explanation obtained for that act whereby national jurisdiction was ignored. (2) Neither during the negotiations for arbitration, nor during the arrangements for direct settlement have I overlooked certain declarations—posterior to the year 1872—which should be suspended. (3) *Neither during the arrangements for settlement nor those for arbitration have I forgotten that the crests of the Cordillera constitute the dividing line of both Republics.* Señor Barros Arana,

who, as I have stated, had cognisance of that document before being submitted to the President, made no correction in, or observation on, the third conclusion, which could not express with greater clearness the formula which I then sustained, and which I have always sustained.'

"After a few months of silence," continues Señor Yrigoyen, "the Minister of Chile had an interview with President Avellaneda, and the latter told me that if further conferences were initiated, he thought we should arrive at a satisfactory solution. I explained to him that I had no objection to again devoting myself to the boundary question, although I no longer cherished hopes of arriving at an understanding which would settle the controversy. Minister Barros Arana wrote to President Avellaneda informing him of the bases which he was authorised to propose, and the first of them was the *divortium aquarum* as the dividing line from north to south between this Republic and the Republic of Chile. The President handed me the proposals as he received them and asked the Representative of Chile to discuss them with me. Thus we entered into a second negotiation, the object of which was to consider the bases presented by Señor Barros Arana, and, if possible, to agree upon a treaty of arbitration, since the direct settlement was not accepted by Chile. Señor Barros Arana officially reproduced the proposal which he made to the President to fix the *divortium aquarum* as the dividing line. And if the declarations, or official proposals of a Minister Plenipotentiary are regarded as made by his Government, except when the latter disavows them, there is no doubt that Argentine writers have been correct in stating that the Chilean Government proposed the *divortium aquarum* as the boundary from north to south. We shall now see whether it was accepted as is stated in El Ferrocarril of Santiago. Señor Barros listened to the observations I made on the formula initiated by him. In the same document published in that newspaper, referring to those conferences, we find the following: 'The Chilean Minister taking his stand on traditional custom, on sound geographical doctrine and on the principles of international law, proposed that it should be defined that the boundary *all along the Chilean-Argentine Andes was the separation of the hydrographic basins, that is to say of the water-parting between the two countries*. In support of this suggestion he quoted the opinions of commentators on the law of nations and the geographical description of the Argentine Republic which had just been published by Burmeister and which that country greatly applauded.'

"If I had admitted the *divortium aquarum*, as is alleged in the Chilean newspaper, Señor Barros would not have had any need to appeal to scientific considerations nor to the opinions of the commentators whom he refers to, and surely he would not have appealed to them, because amongst the estimable qualities which distinguish him, one is that of not making any parade of his well-known erudition. Had I accepted that formula, there would have been no common sense or reason in my proposing the high crest of the Andes as the dividing line, and in carefully specifying the points over which such line should pass. If we had admitted the basis proposed by Señor Barros the Treaty would have simply said, the dividing line is the continental *divortium aquarum*, or I should have literally copied the article proposed by him and which he endeavoured to base on the quotations and reasons published in El Ferrocarril of Santiago. And as a matter of fact, I did not accept that formula; I could not when I listened to it appreciate its practical scope, because, as I have stated on another occasion, we lacked the official surveys of the Cordillera and other necessary antecedents for proceeding with accuracy in this affair. The

formula of Señor Barros Arana was absolutely new to me. The limit between these Republics was always the crest of the Cordillera: the snowy Cordillera ('la Cordillera Nevada') were the words used in all the documents and books of the Colonial period. And that formula has been repeated in all the documents and books published in America and in Europe since the emancipation, among them the Constitution of Chile, and some of her international treaties. But as to the *divortium aquarum*, the hydrographic basins, I do not remember seeing them sustained or mentioned in any negotiations at any time. And probably it has not yet been insinuated, since the Chilean Expert does not quote any case in which it is pointed out."

Further on, Señor Yrigoyen adds :—

"The novelty of the formula proposed by the Chilean Minister; the fact that the Cordillera or its crests are not mentioned in it; the want of any antecedent for such proposal, and the fear lest it might involve us in further differences, were motives why I, out of that consideration to Señor Barros Arana which is due to him, did not admit it, but proposed to him that it should be substituted by that of the 'high crests,' which has age in its favour as well as the previous sanction of both Governments. And being anxious to let it appear that the formula presented by me also possesses the prestige of science, I pointed out that we could use the words employed by Señor Bello in his Treatise on International Law when dealing with nations between whose territories mountains or Cordilleras lay. Señor Barros Arana accepted the substitution, explaining that he could not refuse the formula counselled by an authority so respected in Chile. Consequently, the formula of the *divortium aquarum* proposed by him in his letter to President Avellaneda, and in the subsequent interviews he had with me at the Ministry of Foreign Affairs, was withdrawn and eliminated, and did not reappear in any of the subsequent negotiations; and the formula of the 'high crests' which I submitted was set down as the first article of the Arbitration Treaty, which was stipulated and signed by Señor Barros Arana in 1877 and 1878."

After stating these antecedents, Señor Yrigoyen reproduces the communications exchanged between Ministers Barros Arana and Alfonso, already commented upon, which assist us in defining the scope of the Convention by specifying that the proposal which it had in view was that of establishing the highest crest of the Cordillera as the boundary; and in order to make it once more clear that this was the persistent idea of the Chilean Government, he mentions a further fact. A few days after the Chilean Government had repudiated the proposal of 1877, Señor Alfonso suggested a fresh convention to Señor Barros Arana:—

"It consists, said Señor Alfonso, in the fixation of a line to divide the possessions of both nations, in the river Santa Cruz for instance, and as a last resource in the Rio Gallegos. This line, if extended as far as the Andes, would be the limit of the two Republics in Patagonia and the *most elevated crests of those mountains towards the north*. Arbitration would be constituted with the exclusive object of determining the pecuniary compensation

which one Republic should owe to the other. It is thus manifest," writes Señor Yrigoyen, "as it also is in the official documents of Chile, that the Minister Señor Barros proposed to his Government to fix the limit of the 'high crests,' and that he was authorised to accept it and to propose it."

Señor Yrigoyen completes the statement of the negotiations of the Treaty with these words :—

"This second negotiation having failed, I reported it also to President Avellaneda, in a further communication dated June 24, 1877. Before signing it, I decided to send it, like the last, to the Chilean Minister so that he might examine it and let me know if he found any error, or if I had omitted any reference which it would interest His Excellency to state. He replied on the 26th of the same month, thanking me for the loyalty of my action, and his reply contains the following paragraphs: 'When we resumed our interviews at the end of April and at the beginning of May last I had the honour to place in Your Excellency's hands a sheet of notes in which I had set down the bases which, in my opinion, and according to the instructions of my Government, should serve in the formulation of the arbitration convention. According to my proposal and in accordance with those notes, we ought to leave a record in the protocol of our interviews of these three facts: 1st. The explanations given by me in respect to the seizure of the "*Jeanne Amélie*," and considered by Your Excellency, if not sufficient to put an end to the discussion on that incident, at any rate sufficient to cause it to be removed for the time being so as to facilitate the discussion of the main subject. 2nd. *The reciprocal declaration that both Governments consider the dividing line between Chile and the Argentine Republic throughout that part of the territory in regard to which no discussion has arisen to be the *divortium aquarum* of the Cordillera de los Andes.* 3rd. That both Republics believe that as heirs to all the rights of the King of Spain over those countries, the disputed territories are as a matter of fact of Chile or of the Argentine Republic, who do not recognise claims which any other country desires to enforce against them. Both Your Excellency and myself were agreed on these three declarations, but we were not agreed, neither did we discuss much in detail, either their definite form or whether they were to be embodied in the protocol or in the text of the convention. *I do clearly remember that as regards the second of these points Your Excellency consulted me as to whether it would not be desirable to reproduce the words employed by Don Andres Bello in his Treatise on International Law when referring to the boundaries of countries separated entirely or partially by chains of mountains, and that I replied that I could not refuse to accept an authority so eminent and respected in Chile.* But in all this we simply agreed on the main idea without going so far as to specify it in precise words.' (Note of June 1877.) The Minister of Chile thus recognised that he had officially proposed the *divortium aquarum* and that on my suggestion that formula was substituted by that of Señor Bello; and this was the one adopted in all the subsequent conventions, as it will be seen in the following pages." *

The Chilean Representative mentioned some of the details to which Señor Yrigoyen refers; and being desirous of reconciling them with the doctrine which

* Artículos del Doctor Yrigoyen, 1895, Buenos Aires, pp. 27 et seq.

Chile now upholds, he found a very peculiar explanation. He recognises, in fact, that an interchange of proposals did take place between the Argentine Minister and the Chilean Plenipotentiary: that the latter proposed the *divortium aquarum*, and that the former thought it more prudent to adopt Bello's formula. The Chilean Representative recognises all this, but he thinks that the question rested solely on the choice of the language in which the clause was to be expressed; for, as he says, the Chilean negotiator preferred Latin, whilst the Argentine negotiator thought Spanish would be the most suitable. The Tribunal has heard this statement set forth in the following words:—

“The only question was whether the Latin locution *divortia aquarum* should be used, or the Spanish phrase employed by the writer on international law Don Andres Bello.”

It is to be noted that in the statement read by the Chilean Representative before the Tribunal, a paragraph has been translated from Señor Yrigoyen's explanation which ends as follows:—

“In consequence, the formula of the *divortia aquarum* proposed by him (Señor Barros Arana) in letter to Dr. Avellaneda and at the subsequent conferences with me (Señor Yrigoyen) at the Ministry of Foreign Affairs, was withdrawn and eliminated, not to reappear in any of the subsequent negotiations; and the formula of the ‘high summits’ presented by me, was adopted as the 1st Article of the Treaty of Arbitration put forward and signed by Señor Barros Arana in 1877–78.”

The phrase is very clear, and nevertheless the Chilean Representative comments on it, by saying:—

“It is easy to see that the rectification contained in the reply of Señor Yrigoyen was merely a question of words. The predominating idea, the fundamental thought, remained the same, whether conveyed by the concise Latin expression *divortia aquarum* of the Andes or by the Spanish phraseology, longer but equally precise, i.e. line which runs over the *highest points* of the Cordilleras de los Andes, and passing between the sources of the streams which flow down to either side.”

That is to say, *the Chilean Representative understands that to reject the divortium aquarum, and to adopt in lieu the “high crests” simply involves a declaration of preference for the living languages over the dead languages.* If this were so, the present controversy would be meaningless. The Argentine Republic is simply anxious that in the demarcation of her western boundary the upper crests which were proposed by Señor Yrigoyen and accepted by Señor Barros Arana, in 1877, shall not be abandoned, and that the watershed shall be localised on the summit of the Cordillera.

It is therefore seen that the boundary which was recognised and which it

was desired to sanction, was the traditional and safe limit, the mountain barrier which at its upper crest fixes the common boundary always recognised. It is also seen that if the "water-divide" was vaguely referred to, it never meant that such divide was the water-divide of the South American continent. No document has been or can be produced during the whole course of the negotiations in 1877, in which any mention is made even indirectly of the separation of the hydrographical basins of the rivers that run to the Atlantic and to the Pacific. Lastly, it is seen that the interoceanic divide had not till then been mentioned in the discussion on the boundary between the Argentine Republic and Chile. Further on it will be seen that the doctrine is much more recent.

When the measures for compromise and for arbitration concerted by Señores Yrigoyen and Barros Arana had fallen through, in each case owing to the disapproval of the Chilean Government, the Minister Señor Barros Arana put a stop to the formulation of any further projects, and left the city of Buenos Aires for a time.

On his return he resumed the conferences with the Argentine Minister for Foreign Affairs, at the time Señor Rufino de Elizalde, which went so far as to the completion and signature, on January 18, 1878, of another Arbitration Treaty, destined to meet the same fate as the former ones, namely, to be disapproved by the Chilean Government, which again repudiated the work of their Plenipotentiary.

The details of the negotiations which led to this proposed Treaty have been published in Official Reports, but in them we find no trace of continental divide, of separation of hydrographical basins, or of the source of the currents running to the Pacific and to the Atlantic; there is not a word in them answering to the theory that there is no other standard to judge than the sources of the rivers, to the exclusion sometimes of the main chain of the Andes, and at others of the Cordillera itself.

Article 1 of the Elizalde-Barros Arana project, did not differ substantially from the respective Article of the above mentioned Yrigoyen-Barros Arana project :—

"The Argentine Republic is divided from the Republic of Chile by the Cordillera de los Andes, *the line running along its highest points passing between the sources on the slopes that descend one side and the other.* Any difficulties which may arise from the existence of certain Cordillera valleys in which the line of watershed is not clear, are to be settled amicably with the help of the Experts."

Thus the dividing line in the summit of the Cordillera was again agreed upon by the two Governments. Chile, according to that projected Treaty, ceased to claim land to the east of the Cordillera de los Andes, north of parallel lat. 52° S., and as a consequence the article that in the former proposed agreement regulated the *status quo* in Patagonia was eliminated.

The summit of the Cordillera as the line of delimitation between the two countries being accepted, the Argentine Government yielded in the south, and took into consideration the political interests, and the situation created by the Chilean occupation of Punta Arenas, which is located to the east of that part of the Cordillera below parallel lat. 52° S., and cut by some channels leading to the Pacific.

The Chilean Minister Señor Barros Arana was replaced by Señor José M. Balmaceda, to continue the negotiations upon boundaries.

The difficulties to be overcome were exclusively on the extreme south. There was no question about the western line from north to south. It was already agreed with the special assent of Señor Barros Arana, as Minister of Chile, that—

“The Republic of Chile is separated from the Argentine Republic by the Cordillera de los Andes, the dividing line running along its highest points passing between the sources on the slopes that descend one side and the other.”

It was already agreed that the meaning of the above words was that given by Señor Alfonso, the Chilean Minister of Foreign Affairs, who, in special instructions to Señor Barros Arana regarding the Boundary Treaty, said:—

“Whenever the Andes divide the territories of the two Republics, the loftiest crests of the Cordillera should be considered the line of demarcation between them.”

This same interpretation was maintained by both Governments in the succeeding negotiations, and is that applied by both Governments to the wording of the Treaty of 1881.

Between the term of office of Señor Barros Arana and that of Señor Balmaceda there was framed at Santiago the Treaty called Fierro-Sarratea, which did not contain a definition of the boundary line. The Argentine Congress, however, did not accept this proposed Treaty.

Señor José M. Balmaceda continued the negotiations concerning the boundaries, but it was not possible to arrive at any agreement with him in regard to

the matters of the arbitration to which the Treaty of 1856 referred, and the negotiations were suspended.

Señor Balmaceda was commissioned by his Government, in case he did not succeed in getting the Fierro-Sarratea Compact approved in Argentina, to adopt the necessary measures to obtain an adjustment, fixing the boundary line "*on the easternmost slopes of the Cordillera de los Andes,*" and he requested the Argentine Government to adopt a demarcation further east than that of the high summits—as had been suggested by Señor Lastarria—inasmuch as the watershed was not clearly defined in the Patagonian region. At the same time he informed his Government by telegram:—

"Yesterday a meeting of geographical specialists who were to give their opinion upon the Andean region east of the Cordilleras and the configuration of the high plain at its foot, was held at the Government Offices. They thought that it would be very difficult to carry out the demarcation on the ground itself, as well as to effect the same on the map of the plain designated. And, as far as the Cordillera was concerned, they were unanimously of opinion that it terminated at Cape Providence, and that from Reloncavi to the south there was a well-defined *divortium aquarum* dividing Patagonia from the western region."*

* Señor Bulnes (p. 99) who published this telegram, says that he has reasons for believing that the present Expert Moreno was at the meeting. It is true; Señor Moreno was present, and he affirms that at that meeting all opinions concurred in considering no more desirable boundary to exist than that formed by the summit of the Cordillera. There was also mentioned at this meeting the case of the Rio Aysen, which crossed said summit; the existence of "canales" east of the Cordillera, and the latter's continental termination in Cape Providence, in agreement with the opinion of Darwin and Agassiz. No one present at that meeting thought for a moment of removing the boundary to the continental water-parting east of the Cordillera, and proof of the views which the said present Expert held at that time with respect to the boundary, is his delineation of the same in a sketch which he published at that time (1) to illustrate the question pending, in which the boundary appears along the summit of the Cordillera intersecting the river Aysen and the Canales situated on Argentine territory, and terminating at "Cabo Providencia Fin de los Andes."

Señor Moreno at the same time published some notes on the Patagonian lands (2), in which he said, speaking of the Cordillera:—

P. 15.—"Of a more modern general formation, apparently, than those by which it is flanked, the central cordon, which is the one that serves as the division of the waters, is composed of loftier cones, which diminish in height towards the south, sometimes forming rather low passes of some importance, such as the Itanco and Villarica gaps, those of Bariloche and Pedro Rosales, facing Lake Nahuel-Huapi, which Musters visited opposite Teckel, that of river Aysen, in 45°, and that situated in 50° 40' more or less, a little to the south of Mount Stokes, the latter being seen with its ice-cap from the end of Lake Argentino, near which the more ancient formation of the eastern pre-Cordillera disappears; only the schistous clay remaining.

"The Andes divide at this part, and with this beautiful mass of soaring peaks, some with almost

(1) Cuestiones Chileno-Argentinas. Croquis de la parte austral de la República Argentina disputada por los Chilenos, December 21, 1878, Buenos Aires.

(2) Apuntes sobre las Tierras Patagónicas, Buenos Aires, 1878.

It will not be superfluous at this stage to recall the proposal of compromise which Señor Montes de Oca, who succeeded Señor Elizalde as Minister for Foreign Affairs, made to Señor Balmaceda after the meeting referred to, because

vertical cliffs, others rounded into domes and towers, all glittering and covered with perpetual snow in which the colours of the sky are reflected, change their north-south direction, which they may be said to follow from the regions of the north, and, inclining almost imperceptibly to the south-west, they completely disappear upon reaching lat. 52° S.

"Within the space comprised between 51° and 53°, the last links of the great chain part, and deviate into the midst of an intricate labyrinth of deep and narrow channels, whose geographical appellation reveals the heartsick and disconsolate feelings of the hardy English mariners who traced upon the maps the lines which Creation itself drew there.

"The Little Hope Inlet, that of Last Hope, Obstruction Sound, and the Canal de las Montañas running at the foot of the Cordillera de Sarmiento, almost surround the extremity of the true Cordillera, and Mount Burney alone, the last of its high peaks, rises in King William's Land. The last Andean spurs reach a little further to the south, finishing close to Cape Providence, where 'the Andes properly so-called begin at the Straits of Magellan,' according to the opinion of Agassiz, the eminent scientific authority. There, in the environs, terminates the backbone of America, hidden in impenetrable forests.

"According to the same author, 'the mountains to the north of Mount Providence, the Cordilleras of Sarmiento, and the mountain chains to the east and north of the Nevado Glacier, are parts of one and the same chain, and in reality form the southern termination of the Andes.'

P. 17.—"From all the foregoing it appears that the Andean, and the only natural boundary between the Argentine Republic and Chile ends at Cape Providence, close to Beaufort Bay, the latter being situated at about sixty miles before reaching the western outlet of the Straits of Magellan, on their northern edge. And if Darwin's opinion is accepted, this line should appear to continue in the Cordillera of the islands as far as Mount Darwin and thence to Cape Horn.

"Chile, therefore, has no right of dominion over the Straits in the region which she at present occupies.

"The Argentine Republic, the sole owner of those regions, in which is included the Brunswick Peninsula where Punta Arenas is situated, is unquestionably entitled to demand the evacuation of the said peninsula, but for equity's sake, I think she might cede to Chile King William's Land, where the Cordillera ends, a territory which appears to me to be separated from the rest of the continent by a channel which perhaps communicates with Obstruction Sound, in the neighbourhood of Up and Down Cape, and with Skyring Water through Rhys Inlet, between Mount Dynevor Castle and the Pinto Hills which I believe form the western extremity of the hills called San Gregorio that begin at the Straits. The said channel has not yet been explored by competent persons, but I have heard that it exists, and if this be so, that great territory would be transformed into an island. The Brunswick Peninsula would likewise remain to Chile. The dividing line would then run from the extremity of Last Hope Inlet which bathes the foot of the Andes along the probable channel above mentioned, then by Fitz Roy Channel, by Otway Water, and by the narrowest part of the isthmus, situated between the latter and the Straits in a line from east to west from the south of Shoal Haven at Cape Negro, along a rivulet that runs there, a part where the glacial deposits and an upheaval have closed the maritime communication which in other times converted the peninsula into an island.

"The islands to the east of Punta Arenas in the Straits would remain Argentine. This natural boundary would continue, leaving Dawson Island to Chile, southwards along the end of 'Admiralty Sound,' whence there spreads towards the S.S.E. an icy plain formed by the glaciers of Mount Darwin, which have filled the channel that connected the said sound with Beagle Channel, facing Ponsonby Sound, and from there the line would follow on to the south as far as Cape Horn. Thus both countries would amicably share, almost in equal parts, the Straits and Tierra del Fuego, a larger extent of Magellanic lands remaining in the power of the Chilians than that remaining in the possession of the Argentine Republic. These are the boundaries which Nature has traced between the two countries."

These were the views of Señor Moreno as geographer in 1878, and he held the same twenty years later, when in 1898 he, as the Argentine Expert, proposed the boundary line along the summits of the Cordillera

it again manifests the intention of the Argentine Government to declare the line along the crest of the Cordillera as the boundary between the two countries. That draft says:—

“Art. 1. The Cordillera de los Andes is, from north to south, the dividing boundary between the Republics of Argentina and Chile, as far as lat. 52° , the line of separation

de los Andes as the natural and traditional boundary, limited to the 52° by the Treaties. Nay more, in June 1881, previous to the signing of the Treaty of that year, Señor Moreno, in a Report to the Minister of Foreign Affairs for the Argentine Republic, stated that, if the boundary were traced along the summit of the Cordillera de los Andes, the Argentine Republic would have access to the Pacific. The said Minister, Señor Yrigoyen, made reference to that Report in his speech at the Chamber of Deputies on September 2, 1881, during the discussion of the Treaty of July (3) of that year, stating:—

P. 199.—“I have consulted the opinion of Señor Moreno, and will take leave to read the notes which he has been good enough to hand me.

“The Treaty which specifies the 52° for the southern boundary of Argentine territory, and the Cordillera de los Andes for the western, allows of our having ports in the waters of the Pacific.

“The Cordillera Sarmiento is cut at $52^{\circ} 12'$, leaving a navigable channel between that place and King William's Land where Mount Burney rises.

“This channel, called ‘Ancon sin Salida,’ skirts the great peninsula of the said chain, forms the Small Hope Inlet to the east of the same, penetrates between the two peninsulas, dividing itself into two small channels, but which are always navigable, and reaches the great gulfs of Last Hope Inlet (‘Abra de la Ultima Esperanza’) and the ‘Abra de la Obstruccion’ (Obstruction Sound). The line of 52° cuts these gulfs in the middle, leaving the first to Argentine and the second to Chile.

“The first inlet and that of Warley, which is also Argentine, have good harbours and anchorages.

“The surrounding territory is very different from that situated to the west of the Sarmiento Cordillera. The climate is very mild, the rains less frequent, the land fertile in the extreme, and the mountains, which are not lofty, form wide valleys between their sides.

“To the east of this territory the country resembles that of Gregory Range (Estrecho de Magallanes), to which it likewise appertains in its geological formation.

“In its neighbourhood there arise the affluents which form the Gallegos river, and in general, these are lands easy to colonise with more advantage than those of the Brunswick Peninsula.

“The region situated to the north, between the extremity of Last Hope Inlet (of which the ending is not well known yet) and Lake Argentino, extending to twenty leagues, is still unknown, but I believe that one of the arms of that lake, which I visited in 1877, extends southwards, becoming smaller over the distance, and other lakes besides which appear in that direction, and whose contours have not been thoroughly investigated, between the Inlet mentioned and Lake Argentino, thus form a fresh-water channel running parallel to the sea channel which runs from Reloncavi Bay fed by the waters of the Pacific. My opinion is that this region is of immense value; the lands, the forests, and the pasture grounds which support the herds of wild horses, and the comparatively mild climate, will permit of the development of future settlements. The carboniferous seams extend from the Straits farther north of Lake San Martin; the quantity of timber is very large, and the glacial alluvium contains grains of gold. I believe that by having that region examined, ascending the Santa Cruz in a small steamer, and with the expedition starting from Lake Argentino, an easy exploration of this territory might be made, and we should thus learn what facilities exist for the communication between our Atlantic settlements and those which may in future be founded near those of the waters of the Pacific.

“By the neutralisation of the said channel situated to the south of 52° , our commerce would have easy

(3) Discurso del Señor Ministro de Relaciones Exteriores, Dr. D. Bernardo de Yrigoyen—pronunciado en la Cámara de Diputados Nacionales en las sesiones de los días 31 de Agosto, 1 y 2 de Septiembre de 1881 sobre la cuestión de límites con Chile y el Tratado celebrado entre los Gobiernos de aquel País y la República Argentina, 1882, Buenos Aires.

running along the loftiest points of the said Cordillera, and passing between the sources that descend one side and the other.

“Art. 2. The territories existing to the east of the Andes belong to the Argentine Republic, and those situated to the west of the Andes to the Republic of Chile.

“Art. 3. From the point of intersection of lat. 52° S. and long. $72^{\circ} 41'$ W. of Greenwich, a line shall be traced which, passing between Mounts Rotunda and Paladion, and running from north-west to south-east, reaches the point of intersection of $52^{\circ} 40'$ lat. and $70^{\circ} 31'$ long., corresponding to Oazi Bay or harbour on the northern border of the Straits of Magellan.

“Art. 4. The territories to the east of this line, from the Andes to the Straits, belong to the Argentine Republic and those situated to the west of the said line, to the Republic of Chile.

“Art. 5. On the southern border of the Straits shall be drawn another line which, starting from Cape St. Vincent at the point of intersection of lat. $52^{\circ} 43'$ S., and long. $70^{\circ} 23'$ W. of Greenwich, descends in a north-south direction as far as the Admiralty Channel, cuts Tierra del Fuego at the part which divides the Cerro, or Mount Hope from the Beagle Channel, crosses this Channel, and passing between the Islands of Hoste and Wollaston, which would lie to the west, and the Navarino which would lie to the east, arrives at the intersecting point of lat. 56° and long. 66° .

“Art. 6. To the Argentine Republic belong the portion of Tierra del Fuego and the islands to the east of this line, and to the Republic of Chile, the portion of Tierra del Fuego and the islands situated to the west of the same.

The Government of Chile did not again insist upon removing the boundary east of the highest ridge, i.e. of the summit of the Andes—of the central or main chain—and the definitions given by the Chilean Minister of Foreign Affairs, Señor Alfonso, as to what the boundary line should consist of, clearly demonstrate that the claim previously suggested was abandoned.

No one can say that the proposal of Señor Montes de Oca to Señor Balmaceda, in which it is constantly repeated that the limit is formed by the Cordillera, by the Andes, and by its loftiest points, implies a precedent for marking the

access at all times to those Inlets, and our vessels could provide themselves there with the fuel which they now find so costly. It is not only the mining industry that can be developed at those spots situated between the Plains of Diana and the Atlantic: the Argentine cattle would likewise find abundant food there.

“It is certain that at that Inlet there the Cordillera de los Andes has no branch which can give rise to discussion. The central cordon runs at a long distance to the westward. Its exact delimitation is of the greatest interest at this moment.

“This is the information that I have, and which gives me reason to believe that we shall possess ports in the waters leading to the Pacific.”

This transcription shows that, when the Treaty of 1881 was agreed upon, the Argentine Republic thought that it had obtained access to the Pacific with the boundary line along the summit of the Cordillera, which was the line proposed to Señores Barros Arana and Balmaceda. Only in 1893 the Argentine Republic resolved, for political reasons, to renounce that access.

boundary outside the loftiest points, outside the Andes, or outside the Cordillera. The Chilian Representative, however, mentions that proposal, with the object of saying :—

“The wording agreed to with the Argentine Minister, Señor Montes de Oca, differed from that previously used by the Argentine Ministers, Señores Yrigoyen and Elizalde, in so far that in the place of saying that the frontier line should run over the highest points of the Cordillera, passing between the sources of the springs which flow down to either side, it only said : passing between the sources which flow down to either side. No doubt Señor Montes de Oca wished to prevent the redundance attending the simultaneous employment of two synonymous nouns, such as sources and springs, used by his predecessor to denote the watercourses which flow down to the east and to the west of the Cordillera de los Andes, and only left the word ‘sources,’ which was sufficient to represent without ambiguity the same idea.”

Although as regards the project of Señor Montes de Oca the observation is unimportant, it is desirable to note that the statement read by the Chilian Representative is in error. The redundancy to which reference is made only exists in English, owing to the erroneous translation made. “Sources of springs” is really redundant, but “manantiales de las vertientes,” in Spanish (sources on the slopes) is a correct expression which involves no ambiguity whatever. This shows that the English version is defective, but certainly not that the original is redundant. Neither is it very likely that Señor Montes de Oca in order to avoid redundancy which is not found in the Spanish, would omit the word “vertientes” (slopes) and leave the word “manantiales” (sources), especially as in another project which he himself drew up a few days after the former one, on July 25, he repeated that the line was to pass between the sources on the slopes : in a word, he repeated the formula of Señores Yrigoyen and Elizalde. If Dr. Montes de Oca had considered the wording redundant, and had amended it for that reason, it is evident that he would not have fallen into this hypothetical error. Dr. Montes de Oca, as well as Señores Elizalde and Yrigoyen, used the word “vertientes,” with the same meaning used by the Chilian geographers Barros Arana, Bertrand, San Roman, etc., when defining the slopes of the Cordillera.

Of the lengthy negotiations which occupied the attention of the Argentine Republic and of Chile from 1876 to 1879, during which period so many statements were drawn up, so many projects were formulated, so many notes were passed, and so many reports were published, the only one which has survived in regard to the point now under discussion, is the clear and definite proposal of

the negotiators to mark the boundary line on the summit of the Cordillera de los Andes, in order thus to lend force to the Colonial tradition, and determine the barrier of the Cordillera Nevada, the immense masses of the Andes, as the wall which separates the territorial jurisdiction of the two countries.

4. NEGOTIATION OF THE TREATY OF 1881.

In 1881 the Argentine-Chilian relations passed through a crisis in which period there appeared every probability of a rupture. But the friendly mediation of the Minister of the United States in Buenos Aires, General Thomas O. Osborn, and of the Minister Plenipotentiary of the United States in Santiago, Governor Thomas A. Osborn, led to the celebration of the Treaty which put an end to the conflicts.

The negotiations of the North-American diplomatists did not at first tend to any direct settlement. Probably it appeared to them difficult of achievement. Hence they endeavoured to get the controversy submitted to arbitration.

With this view they discussed the project by means of a complicated and lengthy telegraphic correspondence in order to specify precisely the points which were to form the subject of the decision.

Among the many despatches interchanged is one of May 11, which the Chilian Representative has quoted on the hypothesis that it sanctions their modern doctrine respecting hydrographic basins.

The Minister of the United States in Buenos Aires says to his colleague in Santiago in that part of the said despatch which refers to this subject :—

“ This Government will be disposed to terminate the pending question on the following bases. . . . the *divortia aquarum* of the Cordillera de los Andes shall be acknowledged from north to south, as the boundary line between Chile and the Argentine Republic down to the 52nd degree. . . . Being anxious on my part to facilitate the solution we are seeking, I asked for and obtained a further formula, and the following definite compromise would be accepted which would put an end to all the disputes. Straits, neutralised as you propose. Islands de los Estados, Argentine as you also propose. As a dividing line, one which starting from the *divortia aquarum* in the Andes 52°, goes straight to Point Dungeness, would be accepted.”

After making this transcription, the Chilian Representative states:—

“*The proposal that the divortium aquarum of the Cordillera of the Andes down to 52° should be acknowledged as the boundary line between Chile and the Argentine Republic only confirmed a principle of demarcation respecting which both Governments were in accord. It was accepted without the slightest hesitation, the sole intention being to give it a form in accordance with the Treaty.*”

Notwithstanding this statement, the truth is that the proposals of the Minister Osborn contained in the telegram of May 11 were not accepted, and that in a later despatch of May 31, he said to his colleague at Santiago:—

“In view of the difficulties which you meet with in arranging arbitration, I have placed the question on the ground of direct settlement.” *

The telegram of May 11, therefore, like all the other telegrams exchanged between the American Ministers in the course of the negotiations for the adoption of arbitration, became devoid of importance and meaning, since they did not relate to the new efforts which they undertook in order to arrive at a direct settlement of the dispute.

Moreover the despatch does not mention hydrographic basins or rivers that run to the Atlantic, or to the Pacific, or interoceanic divides: it mentions the *divortium aquarum* of the Cordillera de los Andes, the *divortium aquarum* of the Andes—words which had been interpreted by the Chilian Ministers, Walker Martinez and Alfonso, by the commentators on International Law, and by all who dealt with the boundary question before the compromise of 1881, in the sense of meaning thereby the divide peculiar to the summit of the Cordillera, that is to say of its main chain agreed upon by the two Governments in 1893, when it was considered necessary to reject the theories of Señor Barros Arana, who, notwithstanding having proposed and accepted in 1877 and 1878 to run the boundary line along the summit of the Cordillera, tried in 1892 to quit that natural feature and carry it to the Patagonian plains, outside the Cordillera.

It is needless to revert to the meaning of words to which the Law of Nations in general, and the South American Law of Nations in particular, have attributed their precise signification. In 1881 it was known that when Chile was determining her boundaries with Bolivia in the Atacama region, she specified as such “the Cordillera de los Andes in the *divortium aquarum*,” and it was known

* La Cuestion de Límites entre Chile y la República Argentina por Melquiades Valderrama, Santiago de Chile, 1895, p. 59.

that the Government of Chile understood that that phrase meant "the most elevated crests of the Cordillera and nothing else." This interpretation, which the Chilean Government had based on the authority of science, language and common sense, did not need to be further discussed or further explained.

But even if it were all inaccurate, it could never be inaccurate to say that the Treaty of 1881 sanctioned a different phraseology, which excludes (as we shall very shortly see) all idea of abandoning the summit of the Cordillera. Were this so, and if Minister Osborn had spoken of the continental divide—which can only be said hypothetically—the logical conclusion to be drawn from these premises is that, when rejecting the formula of the Minister of the United States in favour of another, the negotiator must have scouted the very doctrine which has been erroneously attributed to him. But this is not so. The Minister referred to the *divortium aquarum* of the Cordillera with the idea of localising the points of the main chain over which the line was to run, and the modification which the negotiators introduced was worded with the view of stating in explicit terms, in unmistakable words, that it was not possible to go away from the crests under any pretext whatever.

Afterwards, when the idea of arbitration set on foot by the American representatives had to be laid aside, owing to the difficulties which the Plenipotentiary at Santiago encountered, the direct settlement was attempted. General Osborn, Minister at Buenos Aires, sent a series of clauses to his colleague, and stated :—

"If you can get this proposal officially made by the Chilean Government and will communicate it to me by telegram, I will hand it to the Minister for Foreign Affairs, and I am sure that I shall obtain his consent thereto."

The Chilean Minister of Foreign Affairs, Señor Valderrama, then formulated a project which he sent to the United States Plenipotentiary, saying :—

"This Government seconding your efforts (those of the American Minister), I take the liberty of asking Your Excellency's friendly mediation in placing before the Argentine Government the following bases of settlement, which I believe are in accordance with the views recently enunciated by both Governments."

The first of these clauses was thus worded :—

"The boundary between the Argentine Republic and Chile from north to south, as far as the parallel of lat. 52° S. is the Cordillera de los Andes. The frontier line shall run in that extent along the most elevated crests of said Cordilleras that may divide the

waters. The difficulties that might arise from the existence of certain valleys formed by the bifurcation of the Cordillera, and in which the watershed may not be apparent, shall be amicably settled by two Experts, one to be named by each party. Should they not come to an understanding, a third Expert, named by both Governments, shall be called upon to decide. A record, in duplicate, of the operations carried out by them, embodying the points upon which they may have agreed, shall be drawn up and signed by the two Experts, and besides by the third one as regards the points decided by him. This record, once signed by them, shall produce full effect and shall be held firm and valid without necessity of further formalities or proceedings. A copy of the record shall be presented to each of the two Governments."

The Minister of Foreign Affairs for the Argentine Republic when this basis was brought to his knowledge, replied :—

" Accepted with a brief addition to supplement it, it would stand as follows :—The boundary between the Argentine Republic and Chile from north to south as far as the parallel of lat. 52° S. is the Cordillera de los Andes. The frontier line shall run in that extent along the most elevated crests of said Cordilleras that may divide the waters, *and shall pass between the slopes which descend one side and the other.*"

The Chilian Government offered no obstacle whatever to the addition, and consequently the clause was adopted, and in that form it was incorporated into the Treaty of 1881.

This short sketch again proves that during the negotiations for the settlement no direct or indirect reference was ever made to the continental divide. It was, on the contrary, stated that the boundary line was to run over the Cordillera, that it was to follow the most elevated crests of the same, that it was to leave to either country that side of the range which faces it. These clauses reject in the most eloquent manner it would be possible to imagine, a boundary line which, at times, is located simply in a plain.

The Chilian Representative, who must have felt the want of antecedents on which to base the theory of the hydrographic basins, had recourse to the additional paragraph proposed by the Argentine Minister according to which the boundary "*shall pass between the slopes which descend on one side and the other,*" and he stated that it was suggested because Señor Yrigoyen considered that its wording (the wording of the Valderrama basis) "was perhaps not sufficiently explicit to establish the principle of demarcation by the *dirortia aquarum* previously accepted." The conjecture of the Chilian Representative as to the intentions of Señor Yrigoyen was previously published by a Santiago newspaper, and

although it was stated nakedly and without any document in support of it, forced Señor Yrigoyen to contradict it energetically.

“Although I have thought the matter over,” he said, “I cannot find any foundation for such an inaccurate statement. . . . So that the explanation given in *El Ferro-Carril* of Santiago is completely groundless, unlikely and gratuitous. I added the words which are quoted with very different intention to that which is assumed.” *

Señor Yrigoyen need not have contradicted it. It is inconceivable, that in order to adopt as a boundary line one separating the hydrographic basins of the South-American Continent it should be said that it must pass between the two slopes of a range; but the unmistakable assertion of Señor Yrigoyen equally dissipates all doubt.

While the Treaty of 1881 and the projects prior to it were the subjects of debate between negotiators, Parliaments and Ministers, the discussion was simply how far the limit of the Cordillera extended to the south. The Argentine Republic maintained that the upper crests of the Andes formed the dividing barrier as far as the southern confines of the two countries. Chile, on the other hand, accepted that barrier, at times up to 40°, at times up to 46°, at times up to some other degree, thinking that the same regulations could not apply in the south as they did in the centre and in the north: hence her pretensions to Patagonia. The Chilean Minister, Señor Ybañez, expounded this doctrine when commenting, in his note of February 25, 1874, on the Real Cédula of King Carlos II. of 1684. The pertinent part of the paragraph runs thus:—

. . . . “When affirming that the Cordillera Nevada divided them, it only stated a fact which I have not denied and *no one can contradict*, namely, that throughout the entire extent of the provinces of Rio de la Plata, *the said Cordillera is its natural division*; but it ceases to be so where the southern limit of the said provinces exist, that is to say, along the entire extent of Patagonia.”

There was, therefore, no question of a divide of continental waters nor of hydrographic basins, nor was it ever pretended that, in order to mark out the boundaries, it was necessary to seek in the oceans for the rivers which emptied themselves therein and to ascend them afterwards up to their sources on plains and on hills.

No; the sole question was to know how far the limit along the Cordillera Nevada stretched on the south. The 1881 compromise put an end to this con-

* Artículos del Doctor Yrigoyen, 1895, Buenos Aires, pp. 52 and 53.

troversy. Chile acknowledged that the Cordillera separates the two countries as far as the parallel of lat. 52° S., and the Argentine Republic, in return, acknowledged on her part, as Chilian territory, the territory adjoining the Straits of Magellan (which was declared neutral), and the greater part of Tierra del Fuego and the southern islands.

The acknowledgment by Chile of the Cordillera as the boundary between the two countries was, therefore, the basis of the compromise, and in order to affirm that principle, it was so declared in the first lines of Article 1 of the Treaty. To depart from that majestic wall for any purpose or any object is to disregard the clearest and most precise antecedents of the negotiation which was arrived at after overcoming so many obstacles.

CHAPTER VIII.

Summary—1. ERRONEOUS CONSIDERATIONS ON THE INTERPRETATION OF THE TREATY OF 1881.
2. INTERPRETATION CONSISTENT WITH INTERNATIONAL LAW.
3. INTERPRETATION CONSISTENT WITH THE VIEWS OF THE NEGOTIATORS.
4. INTERPRETATION CONSISTENT WITH THE LITERAL MEANING OF THE COVENANT.
5. CHILIAN INTERPRETATIONS.

1. ERRONEOUS CONSIDERATIONS ON THE INTERPRETATION OF THE TREATY OF 1881.

NOTWITHSTANDING the clearness of Article 1 of the Treaty of 1881, the Chilean Representative has endeavoured to prove that this article upholds the principle of the continental divide, and that such was the understanding of Argentine and foreign opinion. With this purpose in view he quoted some of the paragraphs from the works of Señores Leguizamon, Zeballos and Latzina, and the maps of Dr. Brackebush, of the Geographical Institute of Buenos Aires, of Dr. Güssfeldt and Dr. Siemiradski.

It is, without doubt, unnecessary to enter into considerations tending to prove the absolute inapplicability of these quotations. The considerations contained in the explanations which precede, applied to the examination of each of them, are sufficient to disauthorise them. It is obvious that the mere fact of speaking of waters does not warrant the supposition that it signifies a continental divide, which was never spoken of during the course of the lengthy negotiations which preceded the settlement of 1881. It is not sufficient, therefore, to pick out single phrases of writers, where appears the word "waters," to conclude that they favour, as the frontier line, one which leaving the gigantic massifs of the Andes, descends to the pampas, and follows in infinite turns and twists the sources of rivers which discharge their waters into the Atlantic and into the Pacific.

The Chilean theory has never been accepted by Argentine writers.

Señor Leguizamon has mentioned the *divortium aquarum* of the Andes and not of the continent, and in doing so, he has taken into account that this phrase,

according to the official hermeneutics of Chile, explained by her ministers, in absolute terms, signifies "the most elevated crests of the Cordillera, and nothing else." He could never have thought that a Convention which determined the tracing of the boundary in the Cordillera and in its highest crests, would authorise the forsaking of this Cordillera and these highest crests. Never did he think it, and consequently, never did he say so.

From Señor Zeballos, the following paragraph has been taken :—

"A careful survey has proved beyond doubt the existence of a wide river whose direction from east to west showed that the travellers were treading on Chilian territory."

It is to be borne in mind that Señor Zeballos has always been, both in private life and as a Minister, an ardent defender of Argentine claims, an energetic propagandist against all interpretation which did not owe its origin to the Treaty itself and its antecedents, and, on that ground, an energetic propagandist against the continental divide. It will be seen later on that when the provisions of the Treaty of 1881 were being carried out, he held an unmistakeable attitude against the theory that, without any foundation, the Chilian Statement attributes to him.

When an opinion is so manifest, when it shows itself as the declaration of rooted belief, as happens in the present case, it is not possible to argue, to deprive it of its value, by a few loose words which represent nothing, and by the means of which it is hoped to arrive at an issue by means of complex considerations. Señor Zeballos could not have meant that the direction of a river, from east to west, would be of itself a sufficient indication of Chilian territory. When expressing himself as he did in the words that have been quoted, he meant a certain and determined spot; otherwise the sentence would have no meaning at all. The rivers of the whole world do not belong to Chile merely because they run from east to west. Señor Zeballos did not wish to show that the Clyde, for example, belongs to Chile. He mentioned a place, in which though the river would run from north to south, from south to north, from east to west, or from west to east, it would be exactly the same, because he was referring to a region washed by the Pacific Ocean to the west of the ridge of the Andes.

The Expert Señor Don Diego Barros Arana had already cited the same passage, which gave an opportunity to Señor Magnasco to show the inapplicability of the quotation, saying :—

“It is a question of a phrase inserted in Volume 7 of the Boletín del Instituto Geográfico Argentino, casually written without any official character whatever, by which the then President (if we are not mistaken) of the Institute said: ‘A careful survey has proved beyond doubt the existence of a wide river whose direction from east to west showed that the travellers were treading on Chilean territory.’ And adds this which the Expert did not quote. ‘A step further and the rocks immerse in the blue and smooth waters of a colossal gulf, limited in the distance, in the very distance, by dark grey masses of the inaccessible rocks of Chiloé, which appear in the distance,’ etc., etc. It was the question of a region in which the central massifs of the Cordillera disappeared in the alternative immersions, characteristic in the south.” *

The Chilean Representative has also quoted the opinion of Señor Latzina, inasmuch as when in describing in eight different parts of his book, each of the provinces or territories contiguous with the frontier, he said that they are separated from Chile “by the *divortium aquarum*, or by the water-parting line.”

As Señor Latzina refers to the Boundary Treaty of 1881, it would be presuming, leaving aside any other consideration, that he wished to refer to regional watersheds, to those which occur in the main chain of the Andes. He speaks, in fact, of the *divortium aquarum* of the Andes or the *divortium aquarum* of the Cordilleras, and not of the continental *divortium aquarum*. Nothing leads to suppose that his meaning (though he does not explain it) differs from that officially given by the Chilean Ministers, Alfonso and Walker Martínez and from that scientifically given by the exponents of International Law, and especially by Bluntschli. “The watershed line is formed by the highest crest of the chain.”

Of the eight quotations from Señor Latzina brought forward in the Statement read by the Chilean Representative, seven have reference to the *divortium aquarum* of the Cordillera, and one is as follows:—

“The Province of Catamarca is separated from Chile and the Desert of Atacama and Antofagasta by the line that divides the waters which flow to the Pacific Ocean and to the great central plateau.”

In the seven above-mentioned quotations, Señor Latzina stated the true boundary having regard to the Treaties in force, but in the one mentioned he made an evident mistake, which is shown by the Chilean Expert himself in the

* Osvaldo Magnasco, *El Alegato Chileno. Refutación.* Buenos Aires, 1896, p. 39.

line for that part of the frontier which he proposed to the Argentine Expert in the record of September 3, 1898, and which cuts rivers running towards the Atlantic Ocean.

But there is more. In the French edition of his book, *Géographie de la République Argentine*, Señor Latzina has inserted the eight passages which the Chilean Representative has taken from the Spanish edition,* and has inserted them in the same terms, without any change whatsoever. Neither in this edition has the author stopped to explain them. It appeared to him, undoubtedly, superfluous. But, on the contrary, he makes it evident, and in a categorical manner, that he has never taken into consideration the continental divide. He considers that the boundary line is the line of the watershed of the Cordillera, and it is so evident that he rejected the continental divide that he had set aside the sources of rivers which bring their waters to the Pacific. In the map which accompanies the work, edited in 1889, the frontier line cuts, amongst others, the rivers Aysen and Huemules, whose head springs are outside and eastward of the principal range of the Andes. Consequently, Señor Latzina confirms once more the theory that the Argentine Republic maintains, in strict conformity with the conventions in force.

The maps that the Chilean Representative mentions are also inapplicable.

The map of Dr. Luis Brackebush is divided into two parts :—

“The northern and more accurate is the first Argentine map,” says the Chilean Representative, “showing in their true proportions the eastern ranges of the Andes in the Provinces of Mendoza, San Juan and Rioja.”

It does not matter that in this part of the map no rivers are shown to be cut by the boundary line. In the region therein depicted, the rivers which flow to the Pacific spring at and descend from the most elevated crests of the Andes.

The continental divide is therefore concurrent there with the most elevated crests, i.e. with the boundary agreed upon. If the Provinces of Mendoza, San Juan and Rioja only are taken into consideration the map proves nothing, and confirms nothing against the boundary line as interpreted by the Argentines. The Statement read by the Chilean Representative having alluded to Dr. Brackebush's maps, it will not be idle to mention to the Tribunal that in the one published in 1880, as well as in that of 1889, the boundary between the two

* *Géographie de la République Argentine*, Buenos Aires, 1890, pp. 316, 329, 344, 356, 439, 444, 447, and 449.

countries, in those provinces, is drawn over the summit of the Cordillera—considering as such summit, in the Province of La Rioja, the range which from Cerro de la Gallina, extends northwards as far as Cerro Bravo, etc., and including in it the Volcano Azufre or Copiapó. Consequently, the boundary to which the Chilian Expert lays claim in those latitudes, i.e. at the San Francisco Pass, is not to be found in Dr. Brackebush's line. But the Chilian statement, foreseeing the explanation just given, goes on as follows :—

“Between the 27th and 28th parallel the author considers that the main water-divide (interoceanische Wasserscheide) does not exist, as no water flows down to either side from the high plateau of the Cordillera. The author, however, is in doubt on this point, and has inserted the words ‘disputed by Chile’ (cuestionado por Chile) in the doubtful region.”

A copy of Dr. Brackebush's map is laid before the Tribunal, in which not the slightest indication will be found that this author considers that the main water-divide does not exist between the 27th and 28th parallels, notwithstanding that in the Chilian Statement it has been thought useful to introduce in brackets the German translation of the words “interoceanic divide”—interoceanische Wasserscheide—words which do not appear at all in the map. The words “cuestionado por Chile,” disputed by Chile, are there merely as an indication of a Chilian pretension, which is clearly seen, as Dr. Brackebush places the boundary line east of the region covered by them. On the proximities of the 41st parallel, it is true that the line is drawn on the water-divide, but the Tribunal must know that the water-divide is there shown as being on the high summit of the Cordillera, which has been carried to the east of Lago Lacar, where in reality it does not exist—an error committed by Dr. Brackebush, because south of the city of Mendoza to Cape Horn he has made his map merely on references, more or less authorised, deprived of geographical value.

The Chilian Representative adds that “the southern part of the map is geographically of far less value than the former,” and therefore the map need not be further taken into account. Moreover, the Argentine Government, who had the same opinion as that just quoted from the Chilian Representative with regard to the inaccuracies in it, disapproved the map by Decree dated March 6, 1892.

The Atlas of the Argentine Geographical Institute, according to the Chilian Representative, favours the Continental *divortium aquarum*, since the frontier followed this line in the partial maps of the provinces, published in or about the year 1885. The Atlas of the Argentine Geographical Institute, published as such by the Society, i.e. the final Atlas, does not contain in the twenty-nine sheets of which it is composed, engraved at different times, a single plate which

proves the assertion of the Chilian Representative, who, perhaps may have been led into error in presence of some preliminary proofs, which may have existed, but which, if they existed, were cast off.

Of the twenty-nine sheet maps, four were published in 1885, and refer to a part of the Province of Buenos Aires, the Province of Entre-Rios, and the Province of Córdoba, which provinces are not contiguous to Chile ; ten were published in 1886, and refer to Buenos Aires, Santa Fé, San Luis, Tucuman, Santiago del Estero, Formosa, Chaco, Pampa and Rio Negro. Of the aforementioned, Rio Negro alone is contiguous to Chile, and the corresponding map (sheet twenty-four) shows the frontier line cutting amongst others, the rivers Puelo and Bodadahue, and rejects, therefore, the continental divide. Eight sheet maps were published in 1889, referring to the City of Buenos Aires, the Provinces of Corrientes, Mendoza, Rioja, Salta, Jujuy, and the National territories of Neuquen, Chubut and Santa Cruz. The provinces of Mendoza, Rioja, Salta and Jujuy are contiguous to Chile, but there is not in any one of them a single river which crosses the Cordillera. In the map of Neuquen the Lake Lacar is marked in Argentine territory, though the waters of this lake go to the Pacific : in the map of Chubut the rivers Palena, Aysen, Huemules, etc. appear cut by the boundary line ; and in the maps of Santa Cruz the watercourses running to the Pacific are not delineated. Three sheet maps were published in 1890 : one refers to Misiones, which is not contiguous to Chile ; the second to Catamarca, where there are no rivers crossing the Andes ; and the third is a general map of the Argentine Republic—in this last map are shown various rivers cut by the boundary line. The sheet map published in 1891 refers to the Province of San Juan, and in this province there are no rivers crossing the Andean Cordillera. The two sheet maps published in 1892, one of South America, the other of the Argentine Republic, depict the watercourses cut by the line of frontiers. The sheet map published in 1893 refers to Tierra del Fuego, where the boundary agreed upon, viz. a mathematical line, cuts several rivers which the map indicates.

The Atlas of the Argentine Geographical Institute, therefore, proves that, from 1886 to 1893, this Society has constantly construed the Treaty of 1881 in accordance with its true sense and literal meaning, and has rejected the line of separation of hydrographical basins, as inconsistent with the frontier agreed upon in the Cordillera de los Andes and in its highest crests.

There is scarcely any need to say that one of the other maps mentioned by the Chilian Representative, namely, that of Doctor Paul Güissfeldt, has not any bearing on the question under discussion. The explorations of this geographer,

as has been said and recognised, comprise the section of the Cordillera de los Andes between parallels 32 and 35, that is to say, a section where the principal and continuous chain of the Andes is not divided by streams which take rise on one or the other side of it. Between the 32nd and 35th degree the Experts of the Argentine Republic and Chile respectively, each applying his own principle, concurred on the marking out of the frontier line. The Chilean Expert therefore considers that the map of Dr. Güssfeldt favours the argument of the continental divide, but the Argentine Expert is firmly convinced that this map has shown the boundary to be the crest of the principal chain. It is clear that the existence of high peaks, which are spoken of and which are situated outside of the main chain, in separate branches, cannot alter this conclusion, since these peaks which rise isolated, or which form part of isolated systems, do not constitute the highest crest as understood by the Convention. Güssfeldt found between parallels 32 and 35 some rivers that crossed the lateral ranges, which were also found by the Argentine Expert, but Dr. Güssfeldt did not find, nor has the Argentine Expert ever found either any river crossing the principal chain in those regions.

In such cases, and when there is agreement because the contentions that each part brings forward coincide, it is not possible to say that the map favours either of them, since there is no cause for contention.

The map attributed to Dr. Siemiradzki, which is the last cited by the Chilean Representative, has not the importance that has been given to it. Not only is that map not Dr. Siemiradzki's, but that geologist has expressed in his report views diametrically opposed to those attributed to him in the Chilean Statement. On the other hand, though the boundary line is drawn on the map east of Lake Lacar, departing for the purpose from the Cordillera, it has been represented cutting the stream which descends from Mount Chapelc6, into the lake ; therefore, the Chilean Statement's reference to that line when bringing it forward trying to adapt it to its argument is worthless in every case.

Dr. Siemiradzki having been cited as a scientific authority, it is well to point out that his assertions embody the most clear and categorical recognition of the Argentine rights. In one of his Articles published in Petermann's Mittheilungen, and translated for the Anales de la Universidad de Chile, there is a decisive passage which has been endorsed by the Chilean University by the fact of publishing it without any observation. Dr. Siemiradzki, *with the full knowledge of the orography of the country*, as it has been said by the Chilean Representative in the statement read before the Tribunal, says:—

"In Patagonia the Cordillera is low, and particularly the passes of the Cordillera are very low, *since the water-parting is, in most cases, situated outside the main Cordillera, IN ARGENTINE TERRITORY.*" *

The Chilian arguments are, therefore, contrary to the Chilian theory. It is not with them that the force derived from the literal meaning of the Convention, explained by its spirit and antecedents, can be opposed; it is not with these quotations, defective from the start, that it can be asserted that the interpretation of the Covenant of 1881 favours the continental divide, of which no mention was made at any time during the negotiations which preceded the settlement.

2. INTERPRETATION CONSISTENT WITH INTERNATIONAL LAW.

The Representative of the Republic of Chile has stated that the line of the *divortium aquarum*, in the form which he conceives it, "is recommended by international law for the demarcation of boundaries between countries separated by mountains," and quoted, in support of his views, the works of Bluntschli, Fiore, Hall, Calvo and Bello.

None of these authors mention, directly or indirectly, the continental divide: neither do any of them refer to the case of a chain which may be traversed by a watercourse; in a word, not one of them favours the doctrine of Chile, though some of them speak of *watershed*. It is easy to get confused by this word unless carefully considering the matter in detail. For the Chilian Representative it is sufficient that the watershed be mentioned to consider permissible the abandonment, without further examination, of the main ridge of a mountain range.

This conclusion is so far removed from the mind of the authors referred to, that, if anything can be affirmed respecting them, it is that they openly contradict the Chilian conclusions, and support, in an evident and categorical manner, those of the Argentine Republic. This can be easily demonstrated.

1. Article 297 of Bluntschli's Codified International Law has been quoted in these terms:—

"When two countries are separated by a chain of mountains, it is admitted, where doubt exists, that the main crest and the water-parting line form the boundary."

It is evident that Bluntschli gives to the term "main crest" the most important place (*l'arête supérieure* is given in the French translation), and it would be to misrepresent his idea to put this "main crest" on one side, solely to

* Anales de la Universidad de la República de Chile, vol. 85, p. 152.

take into account the watershed line (*ligne de partage des eaux*). In order to exactly interpret Bluntschli's thought and apply it on the demarcation, it would be necessary first to determine the "highest crest" for the purpose of then tracing thereon, the line dividing the waters belonging to this highest crest. The Argentine Republic claims nothing else than this in the present dispute.

This is not a fanciful or capricious interpretation, it is Bluntschli's own. He took upon himself to point out that the watershed line is represented by the highest crest of the chain; he took upon himself to show that the most lofty summits of the mountains are those which constitute the natural frontiers.

Immediately after the Article 297 quoted by the Chilian Representative, and as an explanatory note of its contents, the following paragraph, which has not been quoted in the Statement read by the Chilian Representative, appears:—

"The chains of mountains often serve to separate nations. *The watershed line is formed by the highest crest of the chain.* As the waters descend into the valley and form streams and rivers, so the valley forms the centre of communications between the inhabitants of the surrounding mountains. The nations learnt this at an early date, *and have made the summits of the mountains their natural frontiers.*" *

It is evident that the negotiators of the Treaty of 1881 took Bluntschli into account, inasmuch as all of them have referred to this author when writing on this boundary question, and it is evident also that they noted the perfect agreement between his views and those of the Chilian statesmen, Alfonso and Walker Martinez. The watershed line of which these gentlemen sometimes thought, is not that of the South American continent, but that "formed by the highest crest of the chain," according to the words of the celebrated jurist.

2. With regard to Fiore, the Chilian Representative quotes him in the following way:—

"The distinguished Italian jurist, Pasquale Fiore, says in his *Codified International Law*, published at Naples, 1890, Article 536: '*When two States are separated by a chain of mountains . . . in order to determine the frontier between one country and the other the water-parting line shall be followed.*'"

The phrase, of itself, is not decisive. Granting, for the sake of argument, that it was textually translated from the original Italian, one is at once inclined to ask: Why should it be assumed that Fiore refers to the continental divide, and not to that of the waters belonging to the main and highest chain? One would have to suppose that, if the continental water-parting was referred to,

* M. Bluntschli, *Le Droit International Codifié*, translated by M. C. Lardy, 2nd edition, Paris, 1874, p. 181.

there was a wide difference of opinion with Bluntschli, and to come to such a conclusion, it would be necessary to adduce some reason to justify it, whereas Fiore is not, in general terms, an innovator in International Law.

His name is known in the scientific world, but his *Diritto Internazionale Codificato* is not the work which gave him his chief reputation. Its appearance is comparatively modern, dating from 1890, and, already in 1868, Pradier-Fodéré translated into French the first edition of Fiore's *Trattato di Diritto Internazionale*, which, without doubt, is his principal work.

In order to ascertain Fiore's opinions, it is necessary to refer to his two books. In his most important one we find these words, which reject the Chilian thesis in the most complete manner it would be possible to desire. He says :—

“The mountains which separate two States constitute the natural boundaries between them. Such mountains are either the common property of the two bordering States, or belong to one or the other. In the first case, when the line which determines the boundary is not defined by Treaty, it should be held that to each one of the two States belongs *the extent of the mountain on its side up to the culminating point or edge.*” *

Fiore is of opinion that each of the nations separated by mountains extends its sovereignty over all the slope of the chain which looks towards it up to the highest crest, to the upper edge, to the main crest. How is it, then, that he employs a distinct phrase in his *Diritto Internazionale Codificato*? How is it that he confines himself therein to stating, as one seems to infer from the transcription given by the Chilian Representative, that “in order to determine the frontier between one country and the other *the waterparting line shall be followed*”? Has he, by chance, changed his opinion?

Nothing of the sort. The apparent confusion is, however, readily cleared up by saying that in the Statement read by the Chilian Representative before the Tribunal, only a portion of Article 536 has been quoted, leaving out the very passages which complete Fiore's views on the subject.

In fact, reading the Article in its entirety, without mutilating phrases, without omitting words, one acquires the certainty that Fiore has been consistent with himself and that just as, in one of his books, he expresses a view which contradicts the Chilian doctrine, so likewise in the other which has been referred to, he manifests an idea which equally opposes that doctrine.

The Article reads thus:—

“*Whenever two States may be separated by a mountain chain, AND THE BOUNDARY LINE*

* Pasquale Fiore, *Trattato di Diritto Internazionale*, 2nd edition, Torino, 1882, vol. 2, p. 65, para. 785.

IS NOT DETERMINED BY TREATY AND FIXED BY VISIBLE MARKS, IT SHOULD BE MAINTAINED THAT TO EACH OF THE TWO STATES BELONGS THE SLOPE OF THE MOUNTAIN SITUATED ON ITS OWN SIDE UP TO THE CULMINATING POINT OR EDGE, AND BEAR IN MIND THE LINE *which determines the watershed in order to fix the border of one and the other.*" *

It ensues, therefore, that in the quotation made in the Statement read by the Chilian Representative, *there has been suppressed and substituted by the insertion of dots precisely that part in which Fiore teaches that each one of the nations extends its sovereign jurisdiction over all the side or slope of the chain up to its highest crest*, and there have only been translated the words which recommend bearing in mind, as a secondary rule, the line which determines the watershed in the "culminating point or edge" and not beyond that part, as the dominion of each state reaches up to there. There is not the slightest doubt that the Italian author does not favour the Chilian interpretation, which, with its theory, seeks to incorporate into her territory the two sides of the Andes, the western (which justly belongs to her) and the eastern, which faces the Argentine side, which gradually descends until it is merged in the Patagonian Pampas, and which should justly belong, and does belong, to the Argentine Republic.

3. Hall truly says: "Where a boundary follows mountains or hills, the water-divide constitutes the frontier"; but the water-divide he speaks of is that which peculiarly and exclusively belongs to the chain itself, as he commences by stating *that the boundary follows mountains or hills*.

Besides this, Hall does not depart from the opinions sustained by Bluntschli, which have made their way amongst writers on the Law of Nations. On the same page in which the paragraph mentioned by the Chilian Representative is found, Hall puts a note in which he supports the above conclusions respecting boundaries formed by rivers, lakes, etc., and which he sustains by referring to other authors. Among them figures Bluntschli, paragraphs 295-99, and it is in paragraph 297 (footnote) of Bluntschli, that the two phrases already mentioned are read, which dispel all obscurity, if any exist. "The watershed line is formed by the highest crest of the chain. . . . The nations learnt this at an early date, and have made the summits of the mountains their natural frontiers." †

4. Similar considerations arise from a perusal of Calvo's paragraph:—

"When two States," he says, "are separated by a chain of mountains, the highest crest and the line of the watershed are taken as boundary."

* Pasquale Fiore, *Il Diritto Internazionale Codificato*, 2nd edition, Torino, p. 356, Art. 895.

† W. E. Hall, *A Treatise on International Law*, 1895, p. 127.

So that, according to Calvo, it is, in the first place necessary that there should be a chain of mountains: in the second place, that it should follow "the highest crest," and in the third place that the watershed be adopted.

If, according to Calvo's opinion "the highest crest," and "the line of the watershed" were different things, it is evident that he would not have decided that the frontier line should pass over both features. Since he expresses, clearly and categorically, the necessity of taking into account the "highest crest" it is evident that the watershed he refers to must be that which belongs to and is peculiar to that "highest crest" and not that of the lowest crests, nor that of the plains. If this were not so, the paragraph would contain a real misconstruction.

Besides, in this point, Calvo followed Bluntschli, whose words he repeats with modifications of detail and without making any substantial change.

5. The Chilian Representative's final quotation is from Don Andres Bello's book, *Principios de Derecho Internacional* (Principles of International Law), part 1, chapter iii., which he thus translates :—

"If the boundary of a State is a Cordillera, the dividing line runs over the highest points of it, passing *between the sources of springs* that flow down to either side."

The translation is incorrect. Bello did not say that the line passes "*between the sources of springs*," which would be almost equivalent to saying "between the sources of sources," or "between the springs of springs." Nor did Bello mean that the sources of the springs flow down, as it is known that they do not flow down themselves. The last words of the phrase are in the original Spanish "*por entre los manantiales de las vertientes que descienden al un lado y al otro lado*," the exact rendering of which, is, "between the sources on the slopes which descend one side and the other."

For the present, by way of argument, and without, therefore, accepting its accuracy, it is sufficient to note that, not even in the way in which the Chilian Statement has referred to Bello, does the latter agree with its views. "If the boundary of a state is a Cordillera," he says, "the dividing line runs over the highest points of it." This is the fundamental principle, the idea dominating the whole thought, the primary rule for the tracing of a frontier. Before and above all, "it runs over the highest points." He then adds that it passes—according to the Chilian translation—"between the sources of springs that flow down to either side," and, however obscure the meaning of the phrase may appear translated in this way (although quite clear in the original), it must be admitted that, if Bello referred to "sources of springs that flow down," he referred to "sources

of springs that flow down from the highest points of the Cordillera, and not to those which flow down from heights which scarcely differ from that of a horizontal plain. It appears superfluous therefore to insist any longer on the application of Bello's views to support a doctrine which tries to fix a line in the tracing of which, as the Chilian Representative has said before this Tribunal, "the peaks, ranges or ridges of mountains, *no matter how high they may be*, if they do not divide the waters of the fluvial systems belonging to each country, must be left within the territory of the respective nation." If it is thought that the frontier runs over undulations, no matter how high they may be, it is a contradiction to quote an author who recommends that the boundary in the Cordillera should "run over the highest points of it."

The Statement read by the Chilian Representative does not mention the edition from which Bello's paragraph has been quoted, and, nevertheless, the point, although apparently trifling, has its relative importance, as in some of those editions the thought of the writer appears to be still more clear and precise. In the edition of 1840, for instance, Bello states :—

"If the boundary of a State is a Cordillera, the dividing line runs over the highest points of it, passing *in consequence* between the sources on the slopes which descend one side and the other." ("Si el límite es una Cordillera, la línea divisoria corre por sobre los puntos mas encumbrados de ella, pasando *de consiguiente* por entre los manantiales de las vertientes que descienden al un lado y al otro.") *

The words "in consequence" (*de consiguiente*) are not found in some editions. Reading the definition, it cannot be maintained that Bello adopted the continental divide. The very contrary could, however, be affirmed, since, according to him, the highest parts of a Cordillera necessarily lie between the sources on the slopes. These sources and these slopes are accessory, the explanatory part : the definition stops at the summits, and in the highest of them.

The Expositors of International Law to whom the Chilian Representative referred in his Statement, fix the boundary line of nations separated by mountains in the highest crests of the dominating chain.

According to this teaching, the Argentine-Chilian frontier should leave to Chile the western slope of the Andes from its upper ridge, and to Argentina the

* Principios de Derecho de Geutes, by Andres Bello, published in Santiago, Chile, carefully reprinted by some New-Granadinos, Paris, Bruneau's Press, 1840, pp. 54-55, chap. iii. para. 2 ; *vide* also Madrid edition, 1843, p. 57.

eastern slope which from that same ridge gradually descends until it merges into the plains. Some of these authors were considered, without any doubt, by the negotiators of the Treaty of 1881, who, engaged in defining the national boundary of the Cordillera, could not have thought that future interpretations would endeavour to destroy the work of tradition and geography, for the purpose of incorporating into the territory of only one of the States the two slopes of the Cordillera de los Andes.

But in addition to the writers quoted by the Chilean Representative, there are others, both prior and posterior to the negotiation of 1881, who abound in identical opinions.

The name of the Jurisconsult José Maria Pando, whose *Elements of International Law* were published in Valparaiso, Chile, in February 1848, is well known in South America. He adopted the same rule as Bello, whom he follows to the letter, except for an insignificant change in the position of certain words. Pando, like Bello, believes that

“If the boundary of a State is a Cordillera, the dividing-line runs over the highest points of it, passing, *in consequence* between the sources on the slopes which descend one side and the other.” *

After laying down this rule (which must not be confounded, as has been seen, with that of the continental divide), he amplifies and explains it in such a way that, in accentuating its meaning, he indirectly refutes the pretension of making it serve in favour of doctrines different to what the Argentine Republic sustains.

“It is rare,” he writes, “that such uniformity is found between the two countries; generally there are natural features, such as rivers, lakes or mountains, and then it is necessary to take into consideration, not so much the extent of the territory as the other important advantages. The slopes and the mountain gorges are the objects which should fix the attention, either with reference to the interests of agriculture, industry and commerce, or with reference to what concerns the efficient working of the administration, and the internal and external security of the State; as, not only the individual interests of each of the bordering countries, but also the maintenance of their harmonious and good understanding, demand that the declivities and slopes which face a country should be the property thereof.” †

Silvestre Pinheiro Ferreira in his *Cours de Droit publique interne et externe*,

* José Maria Pando, *Elementos del Derecho Internacional*, Valparaiso, Febrero 1848, p. 99.

† *Ibid.*, p. 190.

first, and in his notes on the work of G. F. de Martens, afterwards, favours the same idea, which has been reproduced by Vergé. He maintains "*that the declivities and slopes facing towards one of the two countries belong thereto,*" and adds :—

"In the same way, the mountain gorges affording facilities to the evildoers of both countries by enabling them to evade the pursuit of justice, and to the neighbouring countries to make unforeseen attacks on the border provinces, it is indispensable to leave at the disposal of the Governments of the two states the entrances into those gorges, which are contiguous to their countries, so that they may establish fortifications and guard-houses, according as each may think most conducive to public safety." *

This was the dominating teaching in International Law at the time when the Treaty of 1881 was negotiated. The natural boundary was considered as the safe boundary ; the arcifinious boundary of a mountain chain as the boundary which safeguarded a country against every attempt on the part of its neighbour : this boundary being determined by the crest of the Cordillera in such a form that each of the States could extend the exercise of its jurisdiction over all its corresponding slope. Through all the differences of language used by the various authors, the same idea is always discerned in them, i.e. that the crest of the main chain is the frontier recommended and defended, in order to locate this line within it, however much the watershed may have at times been spoken of.

The like view has been maintained since 1881. Whenever authors refer to waters, in speaking of the orographic boundary, they refer to the divide effected in the highest crests. Pradier-Fodéré, quoted by the Chilian Representative, has said, among other things :—

"The summit line and the *thalweg* are generally taken as a point of departure in settling boundaries, when the frontier is determined by mountains or watercourses." †

And, further on, he adds :—

"It has been said that the summit line and the *thalweg* are generally taken as the point of departure in settling boundaries, when the frontier is determined by mountains or

* See Silvestre Pinheiro Ferreira, *Cours de droit public interne et externe*, 1830, Paris, vol. 2. p. 71 : G. F. de Martens, *Précis du droit des gens, etc.*, new edition, with Notes by M. S. Pinheiro Ferreira, 1831, Paris, vol. 1, Note 21, p. 381 ; G. F. de Martens, *Précis du droit des gens moderne de l'Europe*, preceded by an Introduction by Ch. Vergé, 2nd edition, 1864, Paris (Guillaumin), vol. 1, p. 134, Note.

† P. Pradier-Fodéré, *Traité de droit international public, européen et américain*, 1885, Paris, vol. 2, p. 327.

watercourses. When two countries are separated by a chain of mountains, it is, in fact, admitted in case of doubt, that the *upper crest and the watershed line form the boundary.*"

In order to avoid the erroneous interpretation by which claim is made to search for this watershed line outside the culminating crest, Pradier-Fodéré goes on to say :—

"*The watershed line,*" says Bluntschli, "*is formed by the highest crest of the chain.*"

And as though even this were not enough, he then says :—

"It is, besides natural, logical and useful that the slopes of the mountains should belong to the countries towards which they incline."

Finally, Pradier-Fodéré reproduces and makes his own the expressive phrases of Pinheiro Ferreira which have been already referred to.*

These considerations suffice. With the aid of the writers quoted by the Representative of Chile and the others above mentioned, a conclusion may be arrived at, which is, besides, sanctioned by mere common sense, to wit : A chain of mountains being the boundary between two countries, the dividing line must be located within that chain, and under no consideration is one allowed to leave its highest crests in order to seek in the plains independent of the chain for the origin of rivers. Reciprocal security forces each country to respect the dominion of either over all the slope, which from the very culminating summit line faces one or the other. The jurists quoted have explained the experience of nations in the matter.

3. INTERPRETATION CONSISTENT WITH THE VIEWS OF THE NEGOTIATORS.

To fully understand the intention which led the Negotiators of the Covenant of 1881 to determine in it the line of the Cordillera de los Andes, it is necessary to bear in mind the antecedents, already enumerated at length, which, even from the very beginning of the Colonial epoch, contributed to fix this line in the highest crests of the Cordillera.

The remote origin of the international dispute which is under discussion dates from the time in which the Spanish Monarch, in his character of absolute

* Op. cit., vol. 2, p. 331.

Sovereign of American lands, divided and subdivided them, in order to facilitate and expedite the jurisdiction of his deputy-lieutenants. The men of those times were guided by a just idea which appears in all the documents tending to mark out the boundary line of their extensive dominions, and this idea was that of determining *natural* boundaries, fit to prevent struggles and hinder as much as possible the encroachment of any rival neighbours. With this object, not only did they concern themselves with the geographical configurations, but with configurations which constituted *real obstacles*, namely, rivers, seas, mountains.

The continental divide, which occurs, at times, in the extensive flats of the Pampas, does not answer this purpose. In such a divide none of those *real obstacles* are to be found, and the fixing in it of the boundary line would have caused unlimited discords. On account of this, there is no Colonial decree, no royal ordinance, nor decree of any kind in which the separation of hydrographical basins is ever mentioned. In dealing with mountains, their highest summits were considered as the principal element in fixing a good boundary line, and in the Andes, their crests which rise gigantically, covered with eternal snow, appeared to be the best barrier against the possible attempts of governors to extend the sphere of the provinces over which they ruled. These snows were regarded as the sign of great altitude, for the crossing of which it was required to make great efforts; also as a visible sign of that difficulty which was looked upon as essential to form the desirable rampart between neighbouring jurisdictions. This was the opinion that Argentines and Chilians wished to adhere to, when saying in Article 39 of the Treaty of 1856—

“Both the contracting parties acknowledge as boundaries of their respective territories those they possessed as such at the time of separating from the Spanish dominion in the year 1810.”

This was the opinion upheld by Argentines and Chilians in the settlement of 1881, to which they agreed (it is said in its preface) “in fulfilment of Article 39 of the Treaty of April, 1856.”

During the War of Independence and after it, at the time when the liberated colonies held their places in the international concert of sovereign nations, the same notion respecting the frontiers prevailed. The natural safe boundary, the boundary which averted conflict, was, as is obvious, the boundary preferred, the boundary respected, the boundary which it was desired to sanction in the Covenants.

The negotiators of the Treaty of 1881 put themselves in accord with the prevalent ideas, and though to the south of parallel 52° they adopted artificial lines to agree with the contending pretensions of both countries, north of parallel 52° they gave political sanction to that frontier which Nature herself had chosen beforehand.

The negotiators of the Treaty of 1881, familiar as they were with the antecedents of the controversy, determined the line of boundary, through the "snowy mountains" referred to by the historian Herrera; through the "very lofty snowy Cordillera" by the Cabildo of Santiago; through "the main highest snow-covered Cordillera," by Miguel de Olavarría; through the "great Cordillera Nevada," by Lorenzo del Salto; "the famous snow-covered Cordillera," by Alonso de Ovalle; "the great Cordillera Nevada de los Andes," by Diego de Rosales; "the snow-covered Cordillera," by Alonso Solorzano de Velasco; the "famous Cordillera Nevada," by Father Lozano; the "Cordilleras Nevadas," by Alonso de Sotomayor, by the Real Cédula of May 21, 1684, by the "Recopilacion de Indias," and by a host of others.

Proceeding in this manner they recognised that Chile occupied, according to the phrase of the Chilean statesman Vicuña Mackenna, "the western slope of the Andes which commences in the regions of the eternal snows and descends gradually to the shores of the sea."

The negotiators of the Treaty of 1881 considered as the boundary between the two countries, this unsurmountable obstacle, which commended itself from remote times, and which made of the Andes the "wall of such lofty dimensions" spoken of by Lozano; "the natural but remarkable walls" spoken of by Perez García; the "great wall" spoken of by O'Higgins; "a natural fortification which from its great extent is unique in the world," as says General Mackenna; the "impregnable barriers" spoken of by General Aldunate; the "colossal bulwark," the "gigantic Cordillera," the "stupendous natural barrier" spoken of by Amunátegui; the "eternal boundaries" spoken of by Rengifo; the "impassable barrier" spoken of by Perez Rosales.

The negotiators of the Treaty of 1881, following the lines imposed on them by tradition and history, agreed on the boundary in the highest crests of the Andes, and in this manner placed themselves in conformity, not only with the different authorities already quoted, not only with the Chilean statesman Señor Rosales, who fixes the boundary through the "crests or summits of the range," or with President Bulnes, who defined it "the culminating line of the

Cordillera," but also with the official opinion of Chile, expressed in public documents of a conclusive character, as the Decree of September 30, 1869, which, speaking of the boundary line in the Andes, states that it passes through "the highest edge of this Cordillera"; as the note of the Chilean Minister for Foreign Affairs, Señor Alfonso, according to whom "whenever the Andes divide the territories of the two Republics the loftiest crests of the Cordillera should be considered the line of demarcation between them"; as the Record of Taltal of 1870, in which the Experts Pissis and Mujia declared that, when drawing the frontier line, they come as far as the "crest of the Andes" or as far as the "anticlinal line of the Andes"; as the Protocol Lindsay-Corral, in which it is stated that "the eastern boundary of Chile, of which mention is made in Article 1 of the Treaty of Boundaries of 1866 (with Bolivia) is the highest crest of the Andes;" as the note in which the Plenipotentiary Don Santiago Lindsay emphatically maintained that the Chilean Government in notes addressed to Señor Bustillo, at Santiago, by word of mouth and in every manner have declared "*that they do not discuss that which bears no discussion: that is, that the eastern frontier of Chile has been, and will always be, the highest crests of the Cordillera de los Andes.*"

This was, therefore, as it should be, the clearly stated views of the settlement of 1881, which in its principal basis, recognises as frontier barrier the one which tradition had marked out. To abandon the highest crests would have been for the negotiators of the Covenant a novelty—a radical reform, which, overthrowing the wise counsels of the experience of centuries, would have established a frontier subject to frequent changes and destitute of that character of security which impelled the acceptance of the snow-covered chain as the boundary line. It would have required a plausible and essential reason, carefully studied, discussed and affirmed in order to abandon the highest crests.

When framing Treaties it is impossible to set aside, generally speaking, the views prevalent at the time; and if by chance, those views are set aside some ostensible and acknowledged motive must exist, some circumstances which necessitate a change in order to meet certain requirements: and this motive, this circumstance ought to be examined, fathomed, analysed in its most minute details. In any other way it would be to violate the lessons of the past, which have the sanction of time and the approval of generations.

The intention of abandoning the summit of the Cordillera was far and away from the mind of the negotiators, as it is not insinuated even in incidental

phrases. On the contrary, the constant intention is always perceived, not to displace the frontier from these walls covered with snow, which by the conditions of their position, appear destined to show the limits of political jurisdictions.

The study of the antecedents tends therefore to this conclusion : according to the spirit of the Treaty of 1881, the frontier line from the northern borders to parallel 52° S. lat. cannot leave the highest crests of the Cordillera de los Andes. Equally easily is it seen, that the wording of the Treaty, analysed without preconceived bias, agrees with its spirit and leads to the same result.

4. INTERPRETATION CONSISTENT WITH THE LITERAL MEANING OF THE COVENANT.

In the Chilian Statement it is said :—

“The spontaneous agreement which, as has been seen, existed among the public men and the geographers of the Argentine Republic, as well as among the distinguished foreign explorers, who, for scientific purposes, visited that region, proves how the terms of the Treaty of 1881, if interpreted impartially, clearly established the boundary between the two countries on the water-parting line or *divortium aquarum*. The documentary evidence of the Treaty proves it to be so ; but, apart from this, the analytical examination of the text of the Treaty, signed by the parties, cannot leave any doubt in that respect.”

Just as the mistake of this assertion has been clearly proved regarding the antecedents of the Treaty, in the same way it is easy to prove that the text is far from saying what is attributed to it. The attempt to analyse the text answers the Chilian view of swerving from the geographical aspect of the controversy, the only one that must be examined ; but the reasons already given, of putting before the Tribunal all the data required, explain the following pages relating to this matter.

Article 1 of the Treaty commences by stating that :—

“*The boundary between the Argentine Republic and Chile FROM NORTH TO SOUTH AS FAR AS THE PARALLEL OF LATITUDE 52° S. IS THE CORDILLERA DE LOS ANDES.*”

This is the rule, the synthesis of the Treaty, the principle which dominates its correlative provisions. The frontier must lie within the Cordillera in virtue of a clause which binds the will of both nations.

The greatest dialectic efforts must give way to the indubitable force of the phrase : “The boundary is the Cordillera de los Andes.” The Cordillera de los

Andes is the geographical feature that has been taken into account. For this reason it has been established as the dividing wall, in the first lines of Article 1 of the Agreement.

The doctrine proclaimed by the Chilian Representative maintains that : the "*divortium aquarum*, or the water-parting line, was recognised as the international frontier," thus converting into the main principle the parting of the hydrographic basins, instead of the Cordillera de los Andes, which the Agreement has fixed, in unequivocal words, as the primary and fundamental condition which explains all its context.

The grammatical analysis of the precept permits it to be affirmed that it includes a complete and finished idea. "The boundary between the Argentine Republic from north to south, as far as the parallel of lat. 52° S., is the Cordillera de los Andes." So that is positive ; and the sentence, terminating with a full stop, indicates that the intention of the authors concludes there, so far as the substance is concerned, even if it goes on afterwards to refer to what is accessory or simply explanatory. Hence it seems superfluous to multiply reflections tending to prove axiomatic truths, about which no discussion is possible, and it is truth of this nature which is enunciated when it is affirmed that the Treaty of 1881 intended to indicate the Cordillera de los Andes as the boundary line, when it designates that "the boundary is the Cordillera de los Andes."

The second paragraph of the Article confines still more the boundary. The negotiators who began by enclosing it within the Cordillera defined the zone of the boundary by bringing it down to a line *which*

"Shall run in that extent along the most elevated crests that may divide the waters, and shall pass between the slopes which descend one side and the other." *

The frontier to be traced was to be "*in that extent*," that is to say, in the

* The Chilian Representative, being anxious to impart to the Treaty of 1881 an exclusively hydrological scope—which he has by no means succeeded in doing—has gone into lengthy considerations to prove that the word "*vertientes*" should not be translated by "slopes" but by "sources," and that consequently wherever the Convention prescribes that the boundary line "shall pass between the *slopes* which descend one side and the other," it ought to read that it "shall pass between the *sources* flowing down to either side."

In support of this conclusion he quotes the versions inserted in the British and Foreign State Papers, and in the Foreign Relations of the United States. According to the first, the frontier line will pass "between the sources thereof on either side," and according to the second it is "to cross the springs that start from both sides." The error into which both publications have fallen arises doubtless from having consulted the current dictionaries of Velasquez de la Cadena, Lopez and Bensley, and Neuman and Baretti, which translate "*vertiente*" by "waterfall," "cascade," "spring," "source," and, as a present participle, by

Cordillera de los Andes to lat. 52° S. without swerving therefrom under any pretext whatever; and must be demarcated "*along the most elevated crests that may*

"flowing." They have not taken into account that the error inserted in these dictionaries which have copied from one another is so manifest that if we look in these same dictionaries for the Spanish word which corresponds to "waterfall," to "cascade," to "spring," to "source" and to "flowing," we do not find the term "vertiente" as the equivalent of any of them.

Moreover, there is nothing to indicate that the translators of the Treaty of 1881, for the State Papers and for the Foreign Relations have made any special study of it. As regards the publication of the United States, it is desirable to remark that the American Minister in Buenos Aires has informed the Minister of Foreign Affairs of the Republic that the translation was not made by the State Department: that it was taken from a newspaper, and that the Government of the United States disavowed all responsibility in regard to any claim which, on that account, might be adduced by either of the parties. The Argentine Legation has been expressly authorised to state this.

At any rate, it is easy to show, and to show in a clear, positive and categorical manner, that the word "vertiente" does not possess the meaning of the words "spring" and "source."

In order to show how it ought to be translated into another language it is essential to commence by ascertaining beyond doubt what is the idea it represents in Spanish. Had this course been taken, it would have been impossible to say that it was the equivalent to "source" and "spring," because neither of the senses in which "vertiente" is used, corresponds to the idea contained in those words.

Which, therefore, is the acceptance of the word "vertiente" if it has only one? and if it has several acceptations, what are they?

By impartially studying the dictionaries of the Spanish language, scientific works and even Chilean authorities, we find that there are two acceptations of the word "vertiente," and they both differ substantially from "sources" and from "springs." They are:—

1. *As a substantive* it means the sides down which flow the waters of the mountain, or place or ground over which waters run or may run.

2. *As an adjective* or as a *present participle* of the verb *verter* when preceded by the word *aguas* (waters) which it qualifies, it means the waters that descend mountains or mountain ranges.

For greater clearness of expression it is desirable to deal with each of these acceptations separately.

(a) *As a substantive.*

The Dictionary of the Spanish language published by the Royal Spanish Academy defines "vertiente" as follows: "Declivity or place down which water runs or may run" (*Declive ó sitio por donde corre ó puede correr el agua*). It is well known that this work is regarded as the highest authority on the language, and consequently it may be taken to be decisive on this point, even if there were not numerous means for forming an opinion which corroborated it.

The National Dictionary of the Spanish Language by Señor Domínguez, following the Academy Dictionary, gives as the only explanation of the word as a substantive: "The slope or place down which water glides, runs or may run" (*El vertiente ó sitio por donde se desliza, corre ó puede correr el agua*).

Spanish-speaking writers endeavouring to give a geographical and scientific explanation of the word "vertiente" express themselves in identically the same sense.

Suarez Inclán writes: "... the lateral surfaces which constitute the inclined planes (of a mountain) from summit to foot, are known as *declivities*, *flanks*, *sides* or *vertientes*." (1)

Giol y Soldevilla says: "... the lateral surface (is called) the declivity, side, 'vertiente' or flank of a mountain." (2)

Vilanova y Piera states: "The flanks or lateral portions of the Cordilleras receive the name of

(1) *Tratado de Topografía* por Don Julian Suarez Inclán, Madrid, 1879, quoted by Alejandro Bertrand, *Estudio técnico acerca de la aplicación de las reglas para la Demarcación de Límites*, 1895, Santiago de Chile, p. 151.

(2) *Tratado de Topografía* por Don Isidro Giol y Soldevilla, 1884, Madrid, quoted by Don Alejandro Bertrand, *op. cit.*, p. 155.

divide the waters." This is the "immovable" boundary referred to in Article 6 of the same Treaty.

In order to grasp the meaning of these words, it is sufficient to take into consideration that in the various draft Treaties previous to that of 1881, it was

'vertientes' as they terminate at the points where the waters separate (divortia aquarum of the ancients)." (3)

Señores Paz Soldan write as follows: "The tract of ground which descends from the heights of the mountains to the neighbouring plains is called a 'vertiente,' and among the common people a *side* or a *declivity*." (4)

Lorenzo Gallego Carranza constantly uses the word "vertiente" as a synonym for the side of the mountain. (5)

If we consulted the dictionaries and books written in other languages we should find further proofs.

The French word "versant," by its etymology and by the idea which it represents, has identically the same acceptance as the Spanish word "vertiente." The dictionaries of Paul Guérin, of Larousse, of Littré and of the Académie Française, say that "versant" is "la pente d'un des côtés d'une chaîne de montagnes"; and the examples which they give are the following: "Le versant espagnol des Pyrénées"; "Les hêtres s'annoncent haut sur le versant jusqu'à plus de 3000 pieds." (6)

Lapparent says as follows: "Les deux versants d'une chaîne simple sont inégalement inclinés et le plus abrupt est toujours celui qui fait face à la plus grande dépression." (7)

Besides all these authorities and many others which it would be easy to collect, and apart from them, we have the authorities of Chilian writers themselves, who, in the present case, must be regarded as decisive.

Don Francisco J. San Roman, in a work published in defence of the Chilian doctrines, referring to the signatories of the Treaty of 1881, says, in the final part of a paragraph, that "the definition which they establish is as clear as the trends of the Andes to which it refers, with its continued prolongation in extent and its mathematical planes on the opposite 'vertientes' which fall on one side and the other of the line of most elevated crests which may divide the waters." (8)

Don Alejandro Bertrand considers that the word "vertientes" has two acceptations. One which he terms a vulgar and restricted, or hydrological acceptance he applies erroneously, as we shall afterwards see, to the sources of springs, or streams. The other, which he terms the amplest and correct, or topographical, he defines as "the declivity or place down which water glides, flows or may flow." The same Señor Bertrand, as Professor of Topography in the University of Chile, explaining to his pupils the scientific definition said: "If the traveller has been ascending some quebrada or secondary valley, he will reach a point where the descent towards another valley begins, and there he will be able to observe that he finds himself on the edge which separates two surfaces of contrary incline, which are called the "vertientes" of the range of hills or mountains, inasmuch as the waters which fall there pour down towards the valleys on each side. (9)

Don Diego Barros Arana, Expert of the Chilian Republic, has been equally explicit in defining the proper and scientific meaning of "vertientes" in the following manner: "The sides of the mountains down which their waters flow are called "vertientes." To confirm the exactness of his definitions Señor Barros Arana states that they are all taken from the *Geografía Universal Antigua y Moderna*, by Don Antonio Sanchez de

(3) Vilanova y Piera, *Manual de Geología Aplicada*, p. 19; quoted by Lamarca, *Boundary Agreements in force between the Argentine Republic and Chile*, 1898, Buenos Aires, p. 78.

(4) Mateo y Mariano F. Paz Soldan, *Geografía matemática, física y política*, 1863, t. 2, p. 159; quoted by Lamarca, *op. cit.*, p. 79.

(5) Lorenzo Gallego Carranza, *Curso de Topografía*, 1891. Toledo; citado por Alejandro Bertrand, *op. cit.*, pp. 161-6.

(6) Lamarca, *op. cit.*, p. 84.

(7) Lapparent, *Traité de Géologie*, pp. 68-70; quoted by Lamarca, p. 84.

(8) *Estudios y datos prácticos sobre las cuestiones internacionales de límites entre Chile, Bolivia y República Argentina*, by Francisco J. San Roman, 1896, Santiago de Chile, p. 62.

(9) A. Bertrand, *op. cit.*, pp. 47 and 168.

constantly mentioned that the boundary would pass along the "highest points" which, considered absolutely, without further criterion, would have given rise to a broken line jumping from peak to peak over the summits of mountains which

Bustamante (lib. 2, cap. 3.) "In fact," adds Lamarca, "in p. 78 of said work, the above quoted definition is to be found couched in identical terms." (10)

Having laid this down, it becomes easier to find the English word which expresses the idea represented in Spanish by "vertiente." The Argentine Government has adopted "slope" for the reasons indicated by Lamarca in the following paragraphs:—

"In English the word 'vertientes' is best rendered by 'declivities' or 'slopes.' The latter has been adopted, because it is the one invariably employed in scientific books when treating of the Andes.

"'*Declivity*: a slope, sloping down, bend-down, decline, downward slope. The portion of a hill or range of mountains lying on one side or the other of the "crest" or "axis"' (Century Dictionary). Sir John Herschell employs the word in the following phrase: 'The Ural consists, along its western *declivity*, of the older palæozoic rocks.'

"Prescott, in his *Ferdinand and Isabella* (vol. 1, chap. ix.) says: 'They beheld the bright arms and banners of their countrymen gleaming along the *declivities* of the mountains.'

"Ticknor, in his *Spanish Literature*, offers the following example: 'The Pyrenees made then, as they make now, no very serious difference between the language spoken on their opposite *declivities*.' Ticknor's work was translated into Spanish in 1851 by D. Enrique de Vedia and D. Pascual de Gayangos, Member of the Royal Academy of History, and in their version the above lines run thus: 'Entonces, como ahora, el Pirineo, etc.; . . . pero los dialectos que se hablaban de uno y otro lado y en *sus vertientes* eran casi idénticos.' (V. op. cit., Spanish edition, vol. 1, p. 325.)

"Webster's and the Standard Dictionaries define declivity like the Century Dictionary.

"'*Slope*.—2. A declivity; any ground whose surface forms an angle with the plane of the horizon; also, an acclivity, as every declivity must be also an acclivity. 'The buildings covered the summit and slope of a hill'—Macaulay" (Webster, *A Dictionary of the English Language*, 1870.) "*Slope*: a declivity or acclivity; any ground whose surface forms an angle with the plane of the horizon." (Century Dictionary.)

"Geikie says: 'The position of the axis determines the general *slope* on either side. When it runs along the centre of the continent, the average angle of *slope* on either side will be the same. When it lies close to one side the angle must be higher on that side than on the other. Each continent or country, with an axis lying far from the true centre of the region, has therefore a short and steep *slope* on one side, and a long and gentle *slope* on the other. South America presents the most remarkable example of this feature. The axis, with an elevation of perhaps 8000 or 10,000 feet, runs down the line of the Andes at a distance of only from 50 to 100 miles from the Pacific but 2000 miles from the Atlantic Ocean.' (Lessons on Physical Geography, p. 171.)

"On this matter may also be consulted: Hughes, *Modern Geography*, p. 33; Darwin, *Voyage round the World*, pp. 244–5; 318, etc.; Jukes and Geikie, *Manual of Geology*, p. 471; Huxley, *Physiography*, pp. 18–19; Lyell, *Geology*, p. 61; Laing, *Human Origins*, pp. 219 and 376; Tarr, *Physical Geography*, p. 363; etc."

(b) *As an adjective or as present participle of the verb "verter."*

The Dictionary of Domínguez and that of the Real Academia Española accept the use of "vertientes" as present participle of the verb "verter" in the expression "aguas vertientes" which the latter dictionary—the highest authority on the Spanish language as we have said—characterises by saying that they are "such waters as descend from the mountains or their ranges."

The participle or adjective is, therefore, a generic term which applies to every class of water flowing down a mountain, be it in the form of rills, rivulets, ice-streams, rain-water, or any way in which the slopes or declivities of a mountain shed water.

This simple definition is sufficient to show that it is impossible to confound those waters of various origins with the "sources" and "springs," terms which determine more limited and circumscribed ideas.

The Chilean Representative, however, persists in his view of regarding "aguas vertientes" as "sources,"

(10) *Elementos de Geografía Física* por Diego Barros Arana, 1881, Santiago, pp. 46 and 47, note.

are often detached from the central massif, from the axis of the chain, and stand out, like advanced guards, to the east or west of the main chain.

although such acceptance is not found in the Spanish dictionaries, which are in fact those in a position to define with full accuracy the scope of the Spanish words.

It is true that he quotes some passages from writers, but it is also true that among them there is no scientific definition, although it is to such definitions that we look carefully to determine the value of a word. In current language it is common to glide into errors by using provincialisms, which the authors themselves may not notice. Consequently in cases like the present, instead of quoting simply detached phrases it is absolutely necessary to quote concrete definitions, but in no concrete and scientific definition do we find that "vertiente" means the same thing as "spring" and "source."

Hence the references made by the Chilean Representative do not conduce to the object he had in view.

That Mendoza's Acta de Fundacion speaks of "aguas vertientes á la Mar del Norte" (waters pouring into the North Sea) does not warrant any assumption in regard to the use of those words in an acceptance different to that given in the dictionaries. To pretend that such "aguas vertientes" are not the "aguas vertientes" referred to in the Dictionary of the Spanish Academy, is begging the question, without adducing reasons by way of proof. If by "aguas vertientes" we understand all the waters whatever be their origin, which flow down from the mountains, is the above quoted phrase, perchance, unintelligible? Is it perchance necessary in order to ascertain its meaning, to cast aside the surest guides in the language and to say that such waters are only those proceeding from springs, from fountains or from sources? Certainly not.

It is added by the Chilean Representative that the Treaty of 1893 uses the word "vertientes" as synonymous with "sources"; but where is the ground for this assertion? The reason alleged is, that "vertientes" is included in a list of waters, and this proves that "vertientes" means "springs"; but in the first place, the Treaty of 1893 speaks of all *lands* and all *waters*, to wit: lakes, lagoons, rivers and parts of rivers, streams, slopes, etc., and in the second place, if the word had been used as a noun-adjective the word "aguas" being understood, the correct course would be to consider that its adoption was in accordance with the rules of the language and not that there was any intention to alter them.

It is also argued that Bello has referred to "manantiales de las vertientes," which is translated by "sources of the springs," thereby giving to the clear expression in the original an interpretation which turns it into a confused and ambiguous one and which has the disadvantage of being arbitrary.

It is held that Article 595 of the Chilean Civil Code, the work of Bello, shows that he understands that "vertiente" is "source"; and nevertheless when translating into English the prescription contained in the said article, the Chilean Representative translates "vertiente" by "stream," thereby demonstrating the error in his own reasoning, since "source" or "spring" do not imply the same as "stream." He has fallen into a similar anomaly when quoting the minutes or records of demarcation signed by the Commissioners of both countries in 1894, 1895 and 1896.

The contract of 1848 between the Chilean Government and Pissis, if it proves anything, shows that the Chilean Representative is in error when he desires to show synonymy between "vertientes" and "sources," which does not exist; and this compels him to translate "descienden" (which has its exact equivalent in the word "descend") by "flow down"; and enables him to speak of "sources" which abandon their place to "flow down" and to water territories. After this somewhat equivocal translation the Chilean Representative concludes: "It is obvious, especially for those who know how frequently this is done in the Spanish language in analogous cases, that 'vertientes' is here meant, as already said, for 'aguas vertientes' or 'flowing water.'" We see, therefore, that the same form of argument is always used: that which it is desired to prove is taken as proved. The words quoted are: "The culminating line of the Cordillera between the slopes that descend to the Argentine provinces and those that water the Chilean territory." Lamarea, appropriating the argument, triumphantly crushed it by saying: "If highways bend, and turn a corner, and pass by a house and go down a declivity, etc., why should not slopes descend as Mr. Morla Vicuña, Hayden and other writers say; and why sources should do so, *being stationary*, is more than we can satisfactorily explain. Sources do not move from their natural situation; their outflows or overflows may do so in the shape of rivulets, streams or torrents; but slopes certainly go down, fall or sink (i.e. descend) from the high level of their crests to the lower one of the valleys. 'Las vertientes derraman sus aguas en un lago ó canal' (the slopes shed their waters into a lake

But such an interpretation has never been sustained. When the projects of the Treatise referred to the "highest points" they intended to signify by those

or channel), is a phrase commonly used, and as they shed water they naturally irrigate the regions into which it flows. The Chilean President's language is easily understood without need of turning slopes into sources, the more so as the intersection of sources never constitutes a culminating or crest line, even if such intersections took place in nature." Even on the hypothesis that the contract with Pissis made any reference to "aguas vertientes" as it is claimed and not to "vertientes" as stated therein, there is no reason which justifies a complete disregard of the academic definitions to such an extent as to describe the waters that descend mountains or mountain ranges by the word "sources."

The Chilean Representative remarks that Señor Tejedor, the Argentine Minister, on one occasion referred to the place where "vertientes" or traces of water were found, and further on he says that that phrase proves that Señor Tejedor understood "vertiente" to be synonymous with "stream or source." And why so? That is just what the Chilean Representative does not state, yet that is what it would be desirable for him to state, as otherwise it is impossible to find any similarity between stream and source or even to conceive how it is argued that the Argentine statesman has forgotten the meaning of words. It is to be observed that if he attributes to them the meaning which the Academy of the language and with it all scientific men attribute to them, the meaning of the phrase is clearer and above all more precise.

As a decisive argument, the Chilean Representative quotes in support of his doctrine as to the precise synonymy of "sources" and "vertientes" two paragraphs from Doctor Moreno in which the author had not the slightest intention of giving a scientific definition of the word. He knew that "vertientes" as a present participle, when preceded by the word "aguas" (which in ordinary parlance is usually omitted), meant all kinds of waters, whatever their origin, which come down from the mountains, and in that sense he spoke of "the 'vertientes' of the streams which form the Epuyen stream," but the English version of the phrase used is not correct if by "vertientes" we are to understand "sources," especially as it is not usual to say that the sources spring from small depressions in the old moraine. The other paragraph is, if possible, still less to the point. Doctor Moreno is credited with having said: "In that place the valley Los Patos, in the province of San Juan, which has sometimes been claimed by Chile, is, without a doubt, Argentine, because it is situated to the east of the 'springs' which water it." The translation is erroneous. Doctor Moreno referred to slopes, and his expression, as we have said above, is a usual and current one. But even if he had intended to signify "aguas vertientes," he would have spoken of all, absolutely all those that descend from a declivity, and not simply of the springs which if studied in themselves neither move about, alter their position, or water the valley of Los Patos, or anything else, although the water that flows from those springs may irrigate something.

The same observation might be made in regard to the references from Latzina's Geography, but as to these it appears that the Chilean Representative himself does not feel very sure, for he has omitted to transcribe them.

At any rate, even on the hypothesis that the paragraphs which the Chilean Representative mentions were conclusive, even assuming that the Spanish Academy were wrong, and that all the authors who express the same opinion were likewise in error, even on the assumption that the premises of the Chilean Representative were accepted as irrefragable truth, his conclusions would still be objectionable.

He says in effect: "The word 'vertientes' (derived from the verb 'verter' to spill, to empty or throw away liquids) has, in the Spanish language, two meanings, connected, yet distinct. It signifies the source of a river, and in this sense it is used as synonymous with 'manantial,' that is, a spring: in this sense it is also used as an abbreviation for 'aguas vertientes,' that is, flowing waters. This word is besides used to describe the sides or slopes down which waters flow."

Since this is correct, what fundamental reason is there for attributing to "vertiente" the acceptance of source and repudiating the acceptance of "slope"? Why should one have preference over the other?

The Chilean Representative does not stop to discuss this point in detail, he merely outlines some general considerations on this head. The Argentine Republic, on the other hand, bases herself on irrefutable arguments in expressing herself in favour of "slope." Among others may be noted the following:—

1. The first Article of the Treaty of 1881 speaks of mountains, ordering the line to pass by the highest

words "the summit of the Andes," and the Treaty of 1881, accepting the same interpretation, expressed it in unmistakable terms: "the most elevated crests"

crests, and consequently "vertientes" must be understood as referring to mountains, in which case it means *slopes*.

2. An old rule for interpretation, well known and often quoted, is that the words in a sentence should be taken in that meaning which favours the clearness of the text. Phillimore quotes it in these words: "When a provision or clause in a Treaty is capable of two significations, it should be understood in that one which will allow it to operate, rather than in that which will deny to it effect." "When the same provision or sentence expresses two meanings, that one which most conduces to carry into effect the end and object of the convention should be adopted." (11) Thus: "sources or springs" are not to be found on the crests of mountains, and much less in the highest crests that in the Andes generally attain the limits of perpetual snow. They are formed by infiltration and generally appear in the lower part of the slopes, or at the foot of the mountains, or even in the plains far away from the mountain range. Señor Barros Arana, the Chilian Expert, thus explains the sources or springs: "It has been said at the beginning of this chapter that a part of the rain water and of the water produced by the melting of the snow infiltrates the soil through its pores and permeable strata, and in this way penetrates to a greater depth until it reaches a stratum which is impermeable and without cleft, as for instance, a bed of clay. Arrested on the surface of this bed, the water sometimes flows for a considerable distance. If the surface of the bed which arrests the waters is parallel to the ground, the waters are imprisoned, they saturate the upper soil, and form swamps and marshes which it costs much labour to drain. But if owing to the peculiar direction of the strata, or to any incline in the upper stratum, the stratum that receives the waters extends to the surface, the waters will appear and form a spring. The existence of such layers of water, of such lakes and of such subterraneous currents has frequently been discovered by observation. Sometimes they form in such large masses that when they appear on the surface they constitute very copious rivers. . . . In all parts of the earth, the natural fountains called "springs" yield the water which after gliding under the surface of the soil, makes its appearance at a given point and generally travels on to engulf other currents. Mountainous countries have more springs than flat countries or plains, and this is easily understood as it is obvious that the waters absorbed by mountains flow very rapidly owing to the declivity of the land and seek an outlet at the first resting place they find." (12)

If this be so, as can hardly be doubted, no boundary line can fulfil the double condition imposed by the Treaty: to run over the highest crests, that is, on the top of the mountains and, at the same time, between the springs that appear at the foot of mountains, or on the plains. This impossibility has obliged the Chilian Expert to trace a line that runs at the foot of the mountains and in some places through plains, ignoring completely the first condition fixed by the Treaty that the line must run over the *most elevated* crests that may divide the waters. The Argentine construction and translation, on the contrary, allows the proposed boundary line to meet both conditions. In fact, the waters divided by the *most elevated* crests of mountains are not waters coming from sources or springs, which do not exist in those high crests, but waters coming from the thawing of ice or snow or from glaciers or from rains. These waters divide and descend by the slopes of the mountains on either side, and consequently both conditions of the Treaty can be easily observed, as a line can run at the same time over the most elevated crests and between the slopes by which the waters produced by the thawing of snow descend on either side. Therefore the Argentine construction and translation of the Treaty meets both conditions imposed by it: "along the most elevated crests" and "between the slopes which descend one side and the other"; which is not the case with the Chilian proposed line, that not only abandons completely the *most elevated crests*, but in some points abandons the Cordillera itself and runs into the plains of Patagonia in search of the "sources" or "springs."

3. In the Treaty between France and Spain of April 14, 1862, when the word "vertiente" is used, it is understood as "slope," which again shows that this is the scientific import of the word. If we admit that it is synonymous with "spring," then that part of Article 10 of that Treaty in which we read that "the mountain of Astanés . . . is situated (en la *vertiente* septentrional del Pirineo) on the northern

(11) Commentaries upon International Law, by Sir Robert Phillimore, 1882, London, vol. 2, pp. 104-105.

(12) Elementos de Geografía Física por Diego Barros Arana, 1881, Santiago, pp. 124-126.

of the Cordillera de los Andes. "The most elevated crests" are those which form the principal chain of the Andes, sanctioned once again by the Protocol of 1893.

slope of the Pyrenees" (13) would be unintelligible. What was the object of diverging from that model and accepting another meaning which leads to confusion?

4. In studying the Treaty of 1881, and pronouncing opinions thereon, certain Chilean authorities have categorically pronounced in favour of the scientific meaning of the word "vertiente."

We may for instance quote:—

(a) A pamphlet published in Valparaiso clearly in defence of the Chilean doctrines. The author inserts in English, in an appendix, what he describes as "the Treaty of 1881, and the Protocols, Conventions and Agreements of 1888, 1893, 1895 and 1896, literally translated." In this part he says, "The boundary line within these limits shall pass along the highest *crests* of said Cordillera which divide the waters and shall pass between the *slopes* down which the waters flow on the one side and the other." (14)

(b) Señor Alejandro Bertrand, as chief of the technical staff of the Chilean Commissions, published, in 1895, A Technical Study on the Application of the Rules for the Demarcation of Boundaries, in which he advocates the continental water-divide. All his demonstrations tend to that object, but in like manner he takes "vertientes" to be the "slopes." "The term 'vertientes,' he says, "has two acceptations, the amplest and most correct, or the topographical one, according to which it is the declivity or place down which water glides, flows or may flow (dictionary), and the more vulgar and restricted or hydrological one which is applied to the sources of actual springs or streams. Moreover, the same application of the Treaty might be adopted on the strength of both acceptations, except in the case where springs or continuous streams do not exist, and of which we shall treat separately. However, when dealing with the application of *topographical* rules, we must keep strictly to the *topographical* definition; according to these, as we have seen, the slopes of an island or continent are two great planes (or superficies) of opposite gradient, the intersection of which constitutes the main water-divide (divisoria de aguas de primer orden) of the island or continent (Suarez Inclan)." (15) If, therefore, we apply to the vertientes of the Cordillera their topographical definition, we shall have to translate the word by slope and not by source."

(c) In the Morning Post of London, Friday, July 29, 1898, p. 6, there is an article headed "Chili and Argentina: nature of the dispute," which should be carefully borne in mind owing to the official position of the author. The article commences by explaining its origin. In it we read: "In order to obtain information of the present position of affairs in regard to the long-pending boundary question between Chili and Argentina, a representative of Reuter's Agency has had an interview with Señor Morla Vicuña, who is at present Chilean Minister at Washington, but formerly Chilean Minister for Foreign Affairs, and who has represented his Government as Minister at Buenos Aires. In reply to questions, Señor Vicuña said: . . . "The actual wording of the Treaties is: The limit between Chili and Argentina from north to south and down to lat. 52° S. is the Cordillera of the Andes. The frontier line shall run along the highest summits of the said Cordillera which divides the waters, and shall be traced between the *slopes* that descend east and west."

The circumstances under which this statement was made and the position of the person from whom it emanates give it exceptional importance.

5. In the projects anterior to the Treaty of 1881, it was specified, in accordance with Bello, that the line must pass "between the sources on the slopes (los manantiales de las vertientes)." The suppression of the word sources (manantiales) in formulating the Convention which was to put an end to the disputes, is, of itself, very significant. Were there not so many auxiliary proofs, it would suffice to bear in mind this modification, which one must assume was made quite intentionally, in order to show that it was desired to disregard the springs or sources, especially as their addition to the Treaty would have brought about manifold difficulties which it was desired to avoid.

6. Even on the hypothesis that the word "vertiente" has two acceptations and might be employed either as "slope" or as "spring," it would be impossible to doubt that the technical acceptation, the geographical one, is the first. In any scientific treatise containing the definition of the word it will always be found the same, identical in its general outlines, with that given by Suarez Inclan, Giol y Soldevilla, Paz Soldan, Barros Arana, Bertrand, etc., in accordance with the Academy of the Language; they all say without any funda-

(13) Lamarca, op. cit., p. 77.

(14) The Argentine Boundary Question, published by request, 1898, Valparaiso, p. 41.

(15) Bertrand, op. cit., pp. 47-48.

The Chilian Expert, Señor Barros Arana, has not cared to understand that the Argentine Republic has maintained this chain as a partition wall, and now, as formerly, imputes to her a doctrine which would carry capriciously the line leaping from peak to peak. In a Note addressed to the Argentine Expert on January 18, 1892, Señor Barros Arana said :—

“The marking out of a line which would run over the highest summits of the Cordilleras, would produce, were it possible to do it, the most unforeseen and extraordinary

mental divergence in substance that by “*vertientes*” are understood the sides of a mountain down which its waters flow. The other acceptance, if such there be, does not appear in scientific books, and at best it might be maintained that it is employed in some regions where Spanish is spoken. Why, then, must the technical meaning be cast aside in favour of one which is not supported by the approval of the linguistic corporations? “Words of arts,” writes Wildman, “are to be construed according to their technical meaning. Thus, local descriptions are to be construed according to geographical propriety of expression of the period when the Treaty was made, and not according to popular usage;” (16) and Phillimore—taking his stand on Grotius, on Vattel, and on Jenkins—states that: “Words of art, or technical words are to be construed according to their technical meaning. This is as universal a maxim as any that can be found in jurisprudence. It finds its application in international jurisprudence chiefly upon questions of geographical or local distinctions.” (17)

7th. The Chilian Representative has reminded us that the words “and shall pass between the slopes (*vertientes*) which descend one side and the other” were added by the Argentine Minister, Doctor Yrigoyen. What object had the Argentine negotiator in view by using that phrase? He himself has undertaken to explain it: “I endeavoured, above all, to make Article 1 *clear even in its details*, so that no doubt might be reasonably raised. For this purpose it was established that the *boundary* was the *Cordillera de los Andes*. We cannot depart from the latter, no matter how much may be written or argued. . . . The variable width of the massifs which constitute the main range might give room to *cavillings* regarding the points over which the line should run, and in order to avoid such cavillings it was provided that it should follow the most elevated crests that may divide the waters; that is, along that which the Government of Chile (in the instructions given to Pissis in 1848, and which have been so highly recommended by the Chilian Expert) calls the edge or culminating line which separates the slopes. Finally, in order that *even regarding those crests no disconformity might arise*, Bello’s words were added, ‘the line shall pass between the slopes which descend one side and the other.’ . . . It might be gathered from an article published in that newspaper (*El Ferrocarril de Santiago*) that the Chilian Expert only considers as *vertientes* the streams which, after a long course, disembogue into the oceans that bathe America. Señor Barros Arana cannot, as far as I can judge, have proffered or accepted such an opinion. When fixing the boundary line, the Treaty does not speak of streams or rivers which may fall into the Atlantic or the Pacific, or which may disappear before reaching either ocean. Said currents have their special or scientific denomination, according to the volume of their waters or the length of their courses. Señor Barros Arana has properly expounded those names in his treatise of geography; and it is not necessary to observe to him that none of them were written down in the boundary Covenant. *It was not said that the line was to run between streams or between rivers*; it was stipulated that *the line was to pass between the western and eastern slopes* (*vertientes*); and Señor Barros Arana, in accordance with all geographers, has given this clear definition: the sides of the mountains down which their waters flow are called (*vertientes*) slopes, meaning by sides the whole extent of a mountain. It is impossible to doubt that the main range of the Andes extends from north to south, presenting two sides, east and west, down which run the ice-streams and the rain-waters, and it is between those sides, which the Chilian Expert has called *slopes*, that the stipulated boundary line passes, without taking into account the hydrographic accidents lying outside the heights of the crests.” (18)

This mass of antecedents is convincing as to the accuracy of the Argentine translation, and demonstrates in the most palpable manner that the Chilian translation is devoid of foundation.

(16) Wildman, *Institutes of International Law*, 1849, London, vol. 1, p. 178. (17) Phillimore, *op. cit.*, vol. 2, p. 101.

(18) *Artículos del Doctor Yrigoyen*, 1895, Buenos Aires, pp. 54 et seq.

geographical results. How would those summits be united among themselves, being so capriciously and unequally distributed in the *central range* and on both *sides* of the chain? Every time I have put this question to myself, after listening to your opinion, I have found no other answer than that geographical lines would be sought for which would unite those points, cutting at every step the *central range* and the slopes descending from it, the valleys, rivers and arms of the sea, perhaps towns or cities, and infringing, in one word, at every step, the spirit and the letter of the Treaty we have to carry into effect."

That which the Treaty of 1881 established, and which the Argentine Republic has always defended, and defends, is the line of the central range of the Cordillera, to which Señor Barros Arana refers, and on which in 1898 the Argentine Expert placed his general line of frontier. Notwithstanding this fact, Señor Barros Arana did not find it in conformity with the Treaties, from the moment he modified his views about the boundary, as expressed in the above quoted paragraph, thus abandoning the traditional central range—the barrier which, according to his own words, separates Chile from the Argentine Republic.

The indication in the Treaties respecting the height of the crests, which has always been insisted upon, constitutes an element of primary importance, but, nevertheless, seems to be set aside until it disappears from the Chilean Statement. Forgetfulness has been carried so far, that the following argument has been formulated :—

"If it were claimed that this phrase ('which may divide the waters') means only the summits dividing a certain part of the waters, it would be useless, as it would leave the problem of delimitation as vague as before; for, although there is only one general water-divide, not crossed by any watercourse, there are an indefinite number of secondary divides, amongst which the selection would have to be made, if such an interpretation were accepted."

All this presumed vagueness is removed, by merely recalling that no confusion can exist where care has been taken to define the method of selecting the geographical feature by determining the watershed of the summit of the Cordillera.

It is not a case of discussing the different kinds of watershed that exist in nature. The only thing that must be borne in mind is that the Treaties only determine the watershed of the high crests, the *divortium aquarum* of the Andes, the watershed of the main chain, and the continental divide is never mentioned in them.

The Treaty adds that *the line shall pass between the slopes that descend one side and the other*, and this addition was made in order to complete the meaning, and

to signify that the boundary is constituted by the edge of the Cordillera, from which, on both sides, the two inclined planes or slopes descend : as Chile is situated at the western slope and the Argentine Republic on the eastern slope.

The Argentine-Chilian frontier is, therefore, situated within the Andes, in its main and dominant chain, and runs along the most elevated crests—along its watershed.

In presence of the terms employed in the International Convention, the line must be subject to two distinct conditions, viz. :—

1. To be within the Cordillera de los Andes.
2. To run along the most elevated crests of the Cordillera that may divide the waters of the same.

Any interpretation which does not fulfil these conditions is a violation of the agreement, and, consequently, cannot be taken into consideration.

With such definite rules, the negotiators of the 1881 Treaty did not foresee future difficulties, save in the event of the bifurcation of the Cordillera. In everything else, doubt seemed impossible to the negotiators. But, as regards the bifurcation into two equally important branches, precaution suggested the necessity of defining beforehand a method of procedure for the avoidance of discussions which, should they arise, might go so far as to impede the demarcation.

In view of this contingency, it was laid down in Article 1 that :—

“The difficulties that might arise through the existence of certain valleys formed by the bifurcation of the Cordillera, and in which the watershed may not be apparent, shall be amicably settled by two Experts, one to be named by each party.”

It has been said, on the part of Chile, that this provision would be incongruous had the interoceanic watershed not prevailed, in the intention of the negotiators, as a uniform rule for tracing the frontier. It would seem much more incongruous to speak, as is done, of the hypothesis of the Cordillera bifurcating, had the Cordillera not prevailed, in the intention of the negotiators, as a uniform rule for tracing the frontier.

The clause perfectly harmonises with the rest of Article 1, without there being any necessity for suppressing phrases or altering sentences. The frontier line must pass along the most elevated crests of the Andes, which the Agreement assumes to be continuous, in general, from north to south.

The parties carrying on the demarcation, finding themselves in presence

of the bifurcation, would be perplexed if a precise rule for that case had not been previously established. It would not have been sufficient for them to have borne in mind that the boundary must positively be fixed in the Cordillera, as, even in this hypothesis, they were in the Cordillera. With the rule laid down in the Treaty of 1881 as the sole guide, the difficulty would be insolvable, and it was preferred to leave to the judgment of Experts the location of the frontier line in the places they might deem equitable, but without ever departing from the Cordillera where the bifurcation exists. Their powers could only be exercised within the space comprised between the eastern branch and the western branch of the Cordillera in the valley which it was not possible to qualify as Chilian or Argentine, as it was presumed that it was wedged in, obstructing the continuity of the line of the Convention.

The negotiators of the 1881 Treaty, which made the confining of the boundary within the Cordillera de los Andes compulsory, could not suppose that disputes would arise as to the definition of the Cordillera. Its main massif, forming the summit, always visible, not only to the man of science but to every one acquainted with the range, was considered so clear a feature as to prevent any misunderstanding. The negotiators of the Treaty of 1881 made it compulsory to confine the boundary within the most elevated crests, and could never have supposed that disputes would arise in the definition of those crests. But, if concerning this primordial feature it appeared hazardous to think of divergence, the same did not happen with respect to the final detail which it was necessary to consider : the precise place in the summit where the boundary marks should be located. It being a matter of secondary importance, the negotiators put it aside, leaving it to the judgment of the Experts. In the colossal heights where the most elevated crests of the Andes are found, the contending nations would never argue about the ownership of masses of snow or rocks of granite, but they would do so over the orographic feature, which they would consider better adapted to form the logical and natural boundary.

The whole principle of the demarcation is contained in Article 1 of the Agreement, but in Article 2 there is a phrase which has been so misconstrued as to obscure and render null and void the minute specifications of the former.

Both, however, harmonise together. Article 1 establishes that the Cordillera de los Andes, as far as parallel 52° S., is the boundary between the Argentine Republic and Chile ; and Article 2 that, from the intersection of meridian 70

and said parallel, the boundary shall run eastward, following that degree of latitude as far as the *divortium aquarum* of the Andes. It is evident that the frontier line thus designated from north to south and from east to west will coincide at a common point, which will be the south-west vertex of the Argentine boundary, and will be situated: on the most elevated crest line of the "Cordillera de los Andes, which may divide the waters," according to the terms of Article 1, and on that of the "*divortium aquarum* of the Andes," according to the provisions of Article 2. Consequently, the demarcation, running from north to south, must be confined to the Cordillera which reaches parallel 52° S. without deviating in any way. On the other hand, from the intersection of meridian 70° with said parallel 52°, the demarcation must follow the latter westward until it penetrates into the Andes, and reaches in its *divortium aquarum* the boundary from north to south. It cannot stop until it reaches the Cordillera de los Andes, whatever kind of *divortium aquarum* it may find on its way, because in said Cordillera (which is the principal geographical feature), and nowhere else, must the boundary be located. The point of intersection of the line which runs from north to south with that which runs from east to west, in order to comply with the provisions determined by Article 1, must be—

1. In the Cordillera de los Andes.
2. In the most elevated crest of the Cordillera.

The said point lies in the "*divortium aquarum* of the Andes," in accordance with the terms used in Article 2, in order not to repeat the long definition contained in the previous Article.

The expression *divortium aquarum of the Andes* could be employed without any fear, not only because it is used in order to avoid a periphrasis—and the main idea being set forth at great length in the previous Article—but, also, because in official documents of international transcendence, the Plenipotentiaries of Chile had fixed its meaning, which is in accordance with tradition and with the opinions of the Argentine Government. It is only necessary to repeat that Señor Barros Arana, as Chilean Minister, informed his Government that, "from the fiftieth degree of south latitude the boundary between the two countries to the north shall be the summits of the Cordillera de los Andes, *whether* fixed in the most culminating parts or in the lines of the watershed." It may also be remembered that the Chilean Minister, Walker Martinez, stated

—interpreting an Article which referred to the Cordillera de los Andes, in its *divortium aquarum*—that his Government understood as the eastern boundary of Chile, in the part referred to by that phrase, “*the most elevated crests of the Cordillera, and nothing else.*”

The phraseology used in South American Treaties deprives the locution *divortium aquarum* of the Andes of any obscurity which a superficial perusal might suggest; and at the time in which it was used—in a diplomatic agreement designed to terminate for ever a protracted and agitated controversy—it had already become known that the official hermeneutics of Chile harmonised with the invariable view of those who recognised in the central mass of the Cordillera the most admirable obstacle for separating the two countries. The Argentine Government took the explanations of the Chilean Ministers, without for a moment thinking that they could vary to such an extent as to say that the watershed, belonging and peculiar to the most elevated crests of the range forming its main chain, was the separation of the hydrographic basins of the tributary rivers of the Pacific and of the Atlantic, it being known at that time that the sources of some of these rivers were to be found in the Patagonian plains and in the Pampas of Buenos Aires (Chapters iv., v. and vi.). The Argentine negotiator, Señor Yrigoyen who, as Minister for Foreign Affairs, had had the opportunity of knowing the views of the Chilean Ministers, had the deep impression, at the time the Convention was concluded, that the line agreed upon was so extraneous to the continental divide, that he did not hide his views on this point: nor did the technical reports, which enabled him to affirm that the waters which descended down the two slopes of the Cordillera only flowed to one of the two oceans—or, in other words, that that chain penetrated into the channels of the Pacific, in the vicinity of parallel 52°, and left to the Argentine Republic ports on that sea.

“And now that we are referring to ports,” Señor Yrigoyen explained in the Chamber of Deputies, “I will say that, whilst I am persuaded that by the Agreement of July we do not deliver up ports on the Atlantic, I think it probable that the Republic acquires them in the waters which flow to the Pacific; and this view is borne out by Fitz Roy’s maps, so greatly recommended in this discussion. The examination of these maps, and the reports which I have collected, show that the line determined upon by the Treaty cuts through the great Last Hope Inlet or bay, and Obstruction Sound, leaving the first to Argentina and the second to Chile. I am assured that the first-named bay and Wesley Bay, which also remains to Argentina, offer good ports and anchorages, which will serve in time for the needs of the population, or of the industries which may be established in those places. I have consulted the opinion of Señor Moreno, and will take leave to read the notes

which he has been good enough to hand me. 'The Treaty which specifies the 52° for the southern boundary of Argentine territory, and the Cordillera de los Andes for the western, allows of our having ports in the waters of the Pacific.' " *

These words were pronounced in the Argentine Parliament, during the discussion that led to the sanction of the Treaty; and can it be reasonably presumed that the Minister who made this statement had the remotest suspicion of the interoceanic divide? If the frontier line was to run along the sources of rivers in order to assign to Chile, from their source, those watercourses which discharged into the Pacific, and as belonging to Argentina those which discharged into the Atlantic, how could the hopes have been conceived which, without circumlocution, Señor Yrigoyen had manifested of access to the Pacific Ocean?

When he specified the *divortium aquarum* of the Andes, he was aware that the watershed referred to was no other than that which belonged to "the most elevated crests"; as it was in that form, and so understanding those terms, that the convention had been drawn up. He knew that a watershed is the line of intersection of two slopes or inclined surfaces, and hence that the watershed of the Cordillera de los Andes is the culminating line formed by the intersection of its eastern and western declivities.

The Chilean Representative, disregarding the incontrovertible conclusions which both the letter and spirit convey, considers as convincing, in accordance with the views which he holds, the use of the Latin expression *divortium aquarum*.

"Even more convincing, if possible," he says, "is the fact that the negotiators have entered in Article II. of the Treaty the Latin expression *DIVORTIA AQUARUM*, which embodies the idea of the division of the waters of the continent, thus reproducing the same idea expressed in Spanish in Article I."

Nevertheless, it is difficult to fathom the reasons on which he bases his statement. The literal meaning—strictly literal—of the Latin words *divortia aquarum* does not suggest the thought of the separation of the hydrographic basins, particularly in view of the fact that the Romans made a distinction between *divortia aquarum* and *divortia fluminis*, between the division of waters, no matter what their nature, and the divides of rivers. It is even more difficult to discover the motives entertained in the Chilean Statement, when it is considered that the Romans were wanting in indispensable geographical notions to lay down positive

* Speech referred to, pp. 198-9.

theories respecting interoceanic water divides. To claim such exact ideas for the Romans, implies something like an anachronism, a confusion of epochs : it implies the transfer to ancient historical times of principles and ideas which contemporary civilisation is still discussing. If judgment has to be formed solely on suppositions, it is more in accordance with the nature of things, and with the state of knowledge in the Roman era, to say that, in making reference to a *divortium aquarum*, the Romans meant a local watershed of restricted extent, and not a primary and fundamental divide, which would suggest a complete knowledge of the great divisions of the earth, known by the name of continents.

Therefore, if the negotiators employed the Latin expression, they must have used it in accordance with its Latin acceptation. It is inconceivable that they intended to alter it.

It would be out of place to enter into lengthy, philological disquisitions about the *divortium aquarum* of the Romans, and as to what they really understood by that expression; but, seeing that it has been stated to convey the idea of a continental divide, it is essential to prove that, far from this, it applies to the actual summit of the chains.

Although a *divortium aquarum* may exist in plains and in mountains, the Romans reserved the phrase to distinguish *therewith* the upper crest of the mountains from which the waters descend down their two slopes.

Quicherat and Daveluy's Latin-French Dictionary gives the meaning of *divortium aquarum* in these words: "Versants de montagnes (où les eaux se séparent)." According to these learned philologists, the *divortium aquarum* is to be found "in the slopes of mountains," which is equivalent to saying in the intersection. The classics used the phrase in the same sense.

Cicero, in a letter to Atticus, says :—

"Tarsum veni, A.D. III. Non. October. Inde ad Amanum contendi qui Syriam a Cilicia *aquarum divortia* dividit."

The French translators of the celebrated Nisard collection rendered the phrase as follows :—

"J'arrivai le 3 des nones d'Octobre à Tarse, d'où je m'avançai vers le mont Amanus qui sépare la Syrie de la Cilicie et présente un de ses versants à chacun des deux pays." *

It is thus seen that it suffices to speak of *divortia aquarum* in order that

* Collection des auteurs latins, vol. 11, Œuvres complètes de Cicéron avec la traduction en français, publiés sous la direction de M. Nisard, vol. 5, 1852, Paris, p. 220.

it may be understood that each of the slopes of a mountain belongs to each of the countries between which they lie.

The same Cicero, in one of his letters called *ad familiares*, says, on the other hand :—

“Quum venissem ad Amanum, qui mons mihi cum Bibulo communis est, divisus *aquarum divortiis*. Cassius noster, quod mihi magnæ voluptati fuit, feliciter ab Antiochia, hostem rejecerat Bibulus provinciam acceperat.”

In this passage Cicero notifies that the *divortium aquarum* of Mount Amanus divided two provinces ; and it is curious to remark that the French translators of the Nisard Collection have rendered the idea in such terms that one might almost say they had foreseen the present dispute, were that not an absurdity, so great is the precision with which they have defined the boundary, fixing it in the *crest* of the said mountain and between its two *slopes*. They translate :—

“Arrivé au pied de l'Amanus, dont la *crête* me sépare de Bibulus, et qui, *par ses deux versants*, appartient aux deux provinces, j'appris, non sans une grande joie, que Cassius avait réussi à rejeter l'ennemi loin d'Antioche. Bibulus avait enfin pris possession.” *

These paragraphs are decisive. They prove that, by using the Latin expression, the negotiators of the 1881 Treaty sought to confirm once again the idea of stretching the frontier line along the upper and most elevated crests of the Andes. Should they, however, not be deemed sufficient, they could be confirmed by a passage from Titus Livy (book 38, chap. 45) which, in itself, is of insuperable clearness. It is this :—

“Cupientem transire Taurum ægre omnium legatorum precibus, ne carminibus sybillæ prædictam superantibus terminos fatales cladem experiri vellet, retentum ; admovisse tamen exercitum, *et prope ipsis jugis ad divortia aquarum castra possuisse.*”

For Titus Livy, the *divortia aquarum* is situated *prope ipsis jugis*, that is to say, the *very crest*.

Imbued with its spirit, the phrase has been thus translated in the Nisard Collection :—

“Manlius avait voulu franchir le Mont Taurus, et c'était à grand peine qu'il avait cédé aux prières des dix commissaires, aux paroles de la Sibylle, qui ne prédisaient que désastres en dehors de ces limites fatales ; rien n'avait pu l'empêcher cependant d'en approcher

* Op. cit., vol. 5, p. 218.

avec son armée, d'aller camper sur la *crête même* (the very crest) de la montagne, près des sources des fleuves." *

The English translators, likewise, keep to the meaning of the original text, which locates the *divortium aquarum* in the most elevated crest of the chain.

In a version dated 1686, one reads :—

"That having a desire to go beyond Taurus, he could hardly be kept, even by the entreaties of all Ambassadors, from running the risque of that misfortune which that nevertheless he drew his army nearer, and encamped almost upon the *very tops of the mountains where* the waters flow down on both sides (i.e.) near the wells." †

A more recent one, by George Baker, renders it as follows :—

"So eager was the wish of Manlius to cross Taurus that he was with difficulty restrained by the ten Ambassadors, who besought himself voluntarily to the curse denounced in the Sybilline verses against such as should pass those fatal limits. Nevertheless, he marched his army thither, and encamped almost *on the very summit where the waters take opposite directions.*" ‡

This last passage is translated in the very same words by Mr. William A. M'Devitte, in his well-known version from the edition published at Oxford under the superintendence of Mr. Travers Twiss. §

For Titus Livy, then, as for Cicero, the *divortia aquarum* was constituted by "la crête même" (the very crest), by "*the very tops,*" by "*the very summit*" of a chain.

When Señor Walker Martinez, the Chilian Plenipotentiary, officially interpreted the said expression, applied to the Andes, in the sense that it signified "the most elevated crests of the Cordillera and nothing else," he gave it the meaning—to use his own words—"given them by science, language and common sense," and, at the same time, he revealed that his conviction had been formed by a deep study of the classics.

From whatever standpoint the Treaty of 1881 is examined, the final result

* Collection des auteurs latins, publiée sous la direction de M. Nisard, vol. 14. Œuvres de Tite-Live, 1852, Paris, vol. 2, p. 482.

† The Roman History written in Latin by Titus Livius, with the Supplements of the learned John Freinshemius and John Dujatius, 1686, London, p. 735.

‡ The History of Rome, by Titus Livius, translated from the original by George Baker, A.M., 1835, London, vol. 2, p. 317.

§ The History of Rome, by Titus Livius, literally translated by William A. M'Devitte, 1873, London, p. 1772.

will therefore always be identical; the Argentine-Chilian frontier is situated within the Andes, in its main and dominant chain, and runs along the succession of most elevated crests, along the edge which divides the waters which flow down on both sides.

The Convention explained in this way, all its terms harmonize. There is no necessity to search for antinomies and to decide them in accordance with preconceived ideas. The Treaty appears entirely homogeneous, inspired by one main thought, which is logically developed so as to make clear its most minute details. Any other explanation clashes with one or other of its terms, and must be rejected for that sole reason, even were there no other, since it is irregular to lay aside any provision whatever if they can all be made to harmonize without violence.

According to one of these interpretations, the frontier line should run over the highest peaks of the Cordillera; and for those supporting this theory it is needless to seek, on the ground, any other elements of judgment than the height of the Andean peaks. The advantage of this theory lies in the fact that the frontier does not depart from the colossal chain of mountains, which geographically and politically separates the two nations situated in the southern part of America. From this point of view, it follows the provision according to which "the boundary between the Argentine Republic and Chile is, from north to south as far as the parallel of lat. 52° S., the Cordillera de los Andes." But the said theory would alter the Treaty, inasmuch as it does not refer to peaks, but to *crests*, and in order to distinguish them it states that they are of those which "may divide the waters." The theory also clashes with the clause of the Treaty which requires the frontier to pass "between the slopes which descend one side and the other."

The other interpretation is that of the continental divide. Among the innumerable errors of this doctrine, the following may be at once quoted:—

First Error.—It leaves out the Cordillera de los Andes, which is the natural boundary.

On the ground of pure theory, it suffices to bear in mind that the Cordillera de los Andes and the *divortium fluminis* of the South American Continent constitute two different features which result from distinct formative causes, in order to understand that, without going outside the general provisions of the Agreement, the adoption of one or the other is not a matter of indifference. There are some cases in which both coincide, but there are others in which such

coincidence is impossible; if, therefore, the separation of the hydrographic basins were to be adopted as the only rule, the Treaty would be sometimes fulfilled and sometimes violated.

It has already been seen that the line traced by the Chilian Expert, following the infinite windings of the continental *divortium fluminis* absolutely swerves from the Cordillera and traverses veritable open plains. But for the purpose of demonstration it is only necessary to admit the hypothesis in order to affirm that, since the Treaty provides in a positive manner that "the boundary is the Cordillera," it is inconsistent to follow a mode of procedure which entails the demarcation of the frontier line in conformity with a principle independent of that Cordillera.

Had it been desired to fix the separation of the hydrographic basins or the continental *divortium fluminis* as the demarcating principle, it would have been so stated in the Treaty, which contains no reference whatever to such water-divide. On the contrary, it designates the rules to be followed in the Cordillera, along the true *divortium aquarum*, as defined by Cicero and Titus Livy.

In laying down the boundary along the line of the Cordillera in accordance with the provisions which should be adhered to, the Experts must restrict their task to the Cordillera itself, and are empowered, therefore, to disregard any other geographical feature they may encounter on the route. The course of the rivers is of no consequence. They can be cut whenever they cross the massif through the breaches or gaps. It is absurd that the boundary line running from north to south along the crests of the main chain should suddenly twist its trend, and descend from the mountain to the plain, in order to follow the course of the river that interrupts it as far as the source of the same, continuing anew along the crests after describing a wide curve in far-away regions, as the Chilian Expert pretends. The Treaty of 1881 does not lend itself to such hermeneutics. In order not to depart from the most elevated crests, the frontier line must cut the river and cross in a straight line over the breach through which the latter flows.

On the other hand, in laying down the boundary along the line of the continental *divortium fluminis*, the latter would become the sole rule. The Cordillera de los Andes, which is the consecrated boundary, would be relegated to the second place. In those cases in which the continental divide was situated within it, it would be a coincidence—merely a coincidence—when the Treaty provides that there is a rule and a "immovable" rule. To argue that the

coincidence fulfils the conditions of the Treaty, is to remove things from their true standpoint, and, to a certain extent, to ignore it, seeing that it is only a matter of chance that it has been observed. In those cases in which the continental *divortium fluminis* is outside the Cordillera, the violation of the transcendental principle around which all the negotiations have turned is still more apparent, more evident, seeing that it is no longer possible even to invoke a coincidence resulting from chance.

It is, therefore, indubitable that, to maintain and say that the line should run along the separation of the hydrographic basins of the rivers flowing into the Pacific and the Atlantic, is to overlook, to reject, and to suppress the primary declaration of the Treaty of 1881, which constitutes the whole of its meaning which was set forth in its very first words, in order to signify its importance.

Second Error.—Said doctrine, of the continental divide, is likewise opposed to the part of Article 1 which provides that the frontier line

“Shall run in that extent along the most elevated crests of said Cordillera that may divide the waters.”

If the separation of the hydrographic basins of the rivers that fall into the Atlantic or the Pacific were to be the guiding rule, it would not have been possible to mention the most elevated crests. The Chilian Representative, in the course of the Statement read before the Tribunal, has referred to paragraphs and passages in which mention is made of “culminating points,” of “highest summits,” of “most elevated crests”; but in the application of his doctrines he forgets all that, in order to restrict himself to the hydrographic basins which are neither “most elevated crests,” nor “highest summits,” nor “culminating points.” And he cannot either excuse himself by saying that, there being no other crests which may divide the continental waters, he had to confine himself to the only ones he found, high or low, elevated or not; because the Treaty nowhere states that the crests which may divide the continental waters are to be investigated, but those which divide the waters, of whatsoever nature they might be.

It is through adding to the word “waters” a qualification not contained in the agreement, that difficulties arise which impose the suppression of settled conditions; it is through adding to the word “waters” a qualification not contained in the agreement, that the provision respecting “the most elevated

crests " is rendered illusory. Suppress this qualification, and the difficulties are overcome. If the crests must divide the waters, only, it is easy to choose—among the many which answer that condition—those which comply with the Treaties.

Third Error.—The boundary line "shall pass between the slopes which descend one side and the other."

In accordance with the opinion of writers on International Law, it is laid down that the sovereignty of each one of two countries extends along the side of the Andes up to its upper edge. The continental *divortium fluminis*, without other guide than the courses of rivers, leaves out everything save the rivers themselves, and thus includes the two slopes of the Cordillera within one only of the countries. Such a method of procedure clashes with tradition and with political interests. The favoured country incorporates the Cordillera within its dominions, traverses its elevated crest, and makes, as it were, territorial encroachments into the other. In this way the jurisdictional and strategic advantages of the *arcifinious* boundary disappear. No longer do the Andes constitute that "formidable barrier" which had been intended. The "wall" has been passed over, and it is at its base or in the far-away plains—where a variable and capricious geographical feature has been substituted for the eternal boundaries—that the divisional line would lie.

Fourth Error.—The continental divide disregards the whole of the primordial clauses of the Convention of 1881, suppressing some, mutilating others, altering all. In the series of conditions enumerated by it, one alone is observed, which predominates over the others as though it were the only one—the water-parting line; and even with respect to this, it is found necessary to add periphrases and locutions; for, if the original text be preserved in its integrity, it would be impossible to arrive at so complete a subversion, which represents a doctrine according to which the Experts, charged to carry out geodetical operations in the Cordillera, must divert their eyes from the Cordillera and turn them to the shores of the Ocean in order to seek, in every inlet, in every creek, the rivers which discharge into the Pacific, the courses of which would have to be re-ascended for the purpose of demarcating the frontier line between the infinite windings of their sources.

5. CHILIAN INTERPRETATION.

Between an interpretation which consults all the antecedents and which derives its support from every one of the clauses, and another interpretation which forgets tradition and destroys settled conditions, the Chilian Republic decidedly made choice of the former, in the years immediately succeeding the approval of the Agreement of 1881.

The continental divide, as a doctrine, was of tardy appearance among writers and more tardy still in Government circles. At first, both the former and the latter, with the Treaty before them, studying its spirit and its letter, recognised that the historical boundary was the boundary stipulated in the Treaty, and that the one and the other were determined by the edge of the Andes.

The principle appeared to be so evident, that it became diffused in the schools under the authority of the worthy prestige of the Santiago University.

Don Enrique Espinoza, in a geographical text-book, which received the approval of the University Faculty of Philosophy and Philology in its Session October 31, 1890, under the presidency of the geographer Señor Asta Burnaga—fixes the boundaries of Chile, after "*taking into consideration the boundary Treaties with the Argentine Republic*," and stated that it is bounded on the east "by the *Argentine Republic along the anticlinal line of said Cordillera de los Andes*.* As a corollary of this general rule, the Author adds that the department of Copiapó is bounded on the east by "the anticlinal line of the Andes" (p. 119); that the Province of Coquimbo is bounded on the north by a line which starts from Chañaral Bay, on the Pacific, and continues to the east along the chain of the Ventana and other hills as far as the Agua Amarga mountains, whence it continues *to the crest of the Andes* (p. 128); that the department of San Felipe is bounded on the west and north by a branch chain of mountains which starts from the Punta del Olivo and follows the cordon of Coimas, the Orolonco hill, and thence, proceeding eastwards, forms the lines that separate the waters of the Rio Colorado from those of the Putaendo

* *Geografía Descriptiva de la República de Chile*, por Enrique Espinoza, Tercera Edición, Santiago de Chile, 1895, pp. 17 and 18.

up to the *crest of the Andes* (p. 166): that the first zone of the Province of Ñuble *is formed by the slope of the Andes* (p. 290), etc.

But it seems useless to insist on evidence of a private nature when so much overwhelming evidence of an official character exists, which can be consulted in the work of Señor Echeverría y Reyes, which mainly consists of documents emanating from the legislative and executive powers of Chile, having reference to the provisions in force in September 1888 (after the Treaty of 1881) which designate the territorial subdivision of that Republic into provinces, departments, sub-delegations and districts.

The first pages of the work, which consists of two thick volumes, give its history. In July 1888, Señor Echeverría y Reyes offers to sell to the Government the collection of laws and decrees which he had patiently gathered together. The Government then appointed five eminent men, "in order that they, conjointly or separately, should report, as speedily as possible, on the tenor of his request." The commission was composed as follows: Don Francisco Solano Asta-Buruaga, Minister of the Court of Accounts, ex-Dean of the Faculty of Philology and Philosophy, author of the "*Diccionario Geográfico de la República de Chile*"; Don Francisco Vidal Gormaz, Head of the Hydrographical Bureau, explorer and geographer; Don Carlos M. Prieto, Principal of the Main Department of the Hydrographical Bureau; Don Vicente Grez, Chief of the Central Bureau of Statistics; and Don Amado Pissis, Chief of the Geographical Section of the Central Bureau of Statistics, and Author of the "*Geografía Física de la República de Chile*." There were no more competent men on the matter in Chile.

The Commission drew up a lengthy Report; recommended certain modifications, "since the work must be considered as *an official publication*," according to the expression used by the Commission, and giving the authority of its opinion to the rest of the work. In view of this opinion, the Government issued a Decree of Approval, and later on circulated the book among the Chilean Authorities.*

By a careful study of the decrees of the Chilean Government collected by Señor Echeverría y Reyes, it will be noted that officially they accepted as the Argentine-Chilean boundary the culminating line of the Cordillera, without once even casually making mention of the continental divide.

* The book is entitled: Aníbal Echeverría y Reyes. *Geografía Política de Chile ó sea Recopilación de Leyes y decretos vigentes sobre creación, límites y nombre de las provincias, departamentos, sub-delegaciones y distritos de la República*, Santiago de Chile, 1888-1889. It is in the British Museum Library, 10481.1.17, and a copy is laid before the Tribunal.

Thus, four years subsequent to the 1881 Treaty being sanctioned, the Chilian Government did not question that they had recognised the traditional frontier, and in their administrative acts made use of the language employed in Colonial times. The Decree of October 16, 1885, provided that—

“The Department of *Linares*, in the province of that name, is divided into the following sub-delegations, which will have the boundaries, names and numbers given as below :

“Sub-delegation No. 11, *Vega de Salas*, is bounded on the east by the *Sierra Nevada* (snowy chain).

“It is divided into three districts :—

“District No. 1—*Vega de Ancoa* . . to the east by the *Sierra Nevada*.

“District No. 2—*Vega de Salas* . . to the east by the *Sierra Nevada*.

“District No. 3—*Los Gualles* . . . to the east by the *Sierra Nevada de la Cordillera*.

“Sub-delegation No. 13, *San José*, is bounded on the east by the *Sierra Nevada de los Andes*. . . .

“District No. 2, *Loma de Vásquez*, is bounded on the east by the *Sierra Nevada*.” *

Approving these denominations, the Chilian Government issued the Decree of September 27, 1888, which provides :—

“It is detached District No. 3, *Llepu*, from sub-delegation 12, *Ancoa*, in the Department of *Linares* and annexed to No. 11 *Vega de Salas*. This sub-delegation will be bounded on the east by the *Sierra Nevada*, and shall consist of four districts. . . .

“District No. 2 will be bounded on the east by the *Sierra Nevada*.

“District No. 3 will be bounded on the east by the *Sierra Nevada*.

“District No. 4 will be bounded on the east by the *Sierra Nevada de la Cordillera*.” †

It has already been observed that this reference to the Cordillera Nevada has always been resorted to in order to distinguish by facts which strike the imagination, the idea of the gigantic height of the Andean mountains ; but if this ancient expression does not appear to be sufficiently explicit it is still possible to mention other concordant ones which remove and dissipate any doubt.

The Congress of the Chilian Republic, the very one which had studied and given its assent to the Treaty of 1881, passed in 1884 the Law of January 14, which created the departments of Taltal, Chañaral and Copiapó.

* Echeverría y Reyes, op. cit. vol. 1, pp. 294, 300, 301.

† Ibid. p. 304.

Its second Article fixes the boundaries, specifying in the part relating thereto :—

- “Taltal On the east, *the anticlinal line of the Andes.*
- “Chañaral . . On the east, *the anticlinal line of the Andes.*
- “Copiapó . . . On the east, *the anticlinal line of the Andes.*” •

The Chilean nation, through its most representative organs, interpreted in this way the frontier of the Cordillera agreed upon with the Argentine Republic, and declared, in binding injunctions to the inhabitants of the country, that it was the *Sierra Nevada* or the *anticlinal line*.

As this interpretation was derived from rooted convictions, it is to be noted that it is repeated in subsequent official records in as unequivocal terms as could be desired, and in various locations.

The Government Decree of November 3, 1885, disposed that—

“The Department of *Osorno* in the Province of *Llanquihue*, is divided into the following sub-delegations and districts :

“Sub-delegation No. 3, *Damas*. Its boundaries will be : On the north, the Golgol, Lake Puyehué and Río Pilmaiquén, thence as far as the confluence of the Huiño-Huiño, and the Quinco, from its source to the Huechal bridge, on the San Pablo road ; *on the east, the crest of the Cordillera de los Andes.*

“Sub-delegation No. 4, *Cancura*. Its boundaries will be : On the north, the Río de las Damas, from bridge No. 3, called de Chuyaca, to its source, and thence a direct line to the east, as far as the *Cordillera* ; to the east, *the crest of the Andes.*” †

A few days later, on November 30, 1885, the Chilean Government once again recognised that the eastern boundary of the Republic was constituted by the crest of the Cordillera. It disposed that the Department of San Felipe in the Province of Aconcagua is divided into several sub-delegations and districts :—

“Sub-delegation No. 8, *Jahuel*. Its boundaries will be a line which, from the Puntilla del Cñamo, continues along the narrow pass which borders the farm of San José as far as the Puntilla de las Cabras on the west ; it will comprehend the entire Jahuel valley or gap along both sides, *up to the crests of the Cordillera de los Andes.*

“Sub-delegation No. 12, *Miraflores*. The boundary on the east, *the crest of the Cordillera.*”

“Sub-delegation No. 14, *Río Colorado*. Has for limits on the south it is bounded by the Department de los Andes up to the *summit of the Cordillera.*” ‡

• Echeverría y Reyes, op. cit., vol. 2, pp. 308 and 309.

† Ibid. vol. 1, pp. 56 and 57.

‡ Ibid. vol. 2, pp. 212, 216, 219, 220.

Identical terminology is employed in the Decree of December 2, 1885, with reference to the Department of Illapel.

"The Department of Illapel, in the Province of Coquimbo," it establishes, "will be divided into the following sub-delegations and districts:

"Sub-delegation No. 6, *Chalinga* District No. 6, *San Agustín*. Comprehends the whole estate of this name, from las Trancas to the *summit of the Cordillera de los Andes*." *

Likewise, on December 2, 1885, the Government of Santiago fixed—always in an official character—the territorial divisions of the Department of Combarbalá, and referring to sub-delegation No. 1, *Oriente de la Villa*, it establishes that—

"It is bounded on the east by the *crests of the Andes*." †

In the Decree, dated December 6, 1888, the terminology is changed, but the dominant thought is preserved, and the interpretation of the Treaty of 1881 confirmed. This Decree fixed the sub-delegations and districts of the Department of Copiapó, and in it is established:—

"Sub-delegation No. 15, *San Antonio*. District No. 4, *Las Juntas* on the east the *culminating line of the Andes*, on the south, the boundary line with the Department of Vallenar, from the *culminating line of the Andes* up to the source of the Quebrada Aspera."

Sub-delegation 19, *Puquios*. "Boundary on the east, the *culminating line of the Cordillera de los Andes*, from the northern massif of the San Francisco Pass to the los Patos crest." ‡

In epochs prior even to the Treaty of 1881, when the dispute with reference to the jurisdiction over Patagonia was in progress, the Argentine Republic maintained that Chile was bounded on its eastern part by the Cordillera, making reference, in support of her views, to the Treaty in which Spain recognised Chilian independence, and to various political Constitutions which explicitly designated the boundary of the Andes. The Argentine Plenipotentiary, referring to this, informed the Chilian Government that—

"Every title to territorial property and dominion implies a definite extension; and

* Echeverría y Reyes, op. cit. vol. 2, pp. 266, 267.

† Ibid. p. 271.

‡ Notice will be taken further on of the error made by the Chilian Government in referring to the San Francisco Pass as situated in the culminating line of the Cordillera de los Andes. Ibid. vol. 2, pp. 323 and 326.

it has always been agreed in these disputes, that the confession of the party with respect thereto, rendered other proofs unnecessary and dissipated all uncertainty, particularly when such confession was set forth in the very laws."

It is now essential to repeat these expressions. In view of the intention to interpret the Treaty of 1881 in such a form as to forsake the Cordillera de los Andes and its most elevated crests, in order to adopt the continental divide as the only rule, appeal may be made to the Chilean Confession, which is set forth in its very laws, which declare, subsequent to the Treaty and in consequence of its terms, that the boundary is the "*Sierra Nevada of the Cordillera*," the "*anticlinal line of the Andes*," the "*crest of the Cordillera de los Andes*," the "*crests of the Andes*," the "*summit of the Cordillera*," the "*culminating line of the Cordillera de los Andes*," etc.

The Chilean Government cannot appeal to their internal domestic records and claim to oppose them against the international agreements which have been entered into between two different foreign States ; but, on the other hand, neither can they gainsay the importance of the injunctions, the carrying out of which they made compulsory to all the inhabitants of the country, when such injunctions are appealed to by third parties. The Government of Chile, considering their own decision, could not maintain that they are truth at home but error abroad. When, with full knowledge, they have sanctioned with the weight of their authority that interpretation of the Treaties which is derived from their antecedents and from their letter, it is impossible to imagine that it would repudiate their deliberations under any pretext whatever, as appears in the statement read by the Chilean Representative.

It is no question here of the opinion of an individual, the weight of which depends upon the worth of the one who maintains it ; it is a question of the opinion of the Chilean authorities—of those who intervened in the frontier dispute, of those who negotiated the Covenant of 1881, of those who discussed and sanctioned it. It is the authentic interpretation which the jurists proclaim as the correct one, manifesting as it does the wish and the intention of the authors of a phrase, the meaning of which it is sought to reveal ; and in the present case, it is the interpretation that is most free from doubts, since it was made in the first years which followed the sanction of the Treaty, and in circumstances when men's judgments do not appear to have been confused by the prospects of national advantage.

In pursuing the analysis of the official documents collected by Señor

Echeverría y Reyes, other proofs would be found, and among them, some which would sanction the assertion that, in the opinion of the Chilian Government, as in the opinion of the Argentine Government, the rivers may be crossed by the watershed of a Cordillera.

From a purely theoretical standpoint, it is easy to conceive that a line, running along the crest of a mountain chain, through the places where the water-parting takes place, might be traversed by streams which rise outside of such chain. The Argentine Government maintained this in this dispute; the Chilian Republic, likewise, admitted it, in its official records.

There runs along the length of Chile close to the Pacific, a chain known to the geographers of that country by the name of the Cordillera de la Costa, which chain extends from north to south, in a parallel direction to the Andes.

The coast Cordillera is broken in different places by the watercourses which descend from the Andes, or, in other words (those of Señor Barros Arana), "this chain is frequently cut by rivers which force their way between the mountains as they flow towards the sea." *

Can it be said that that Cordillera de la Costa has a *divortium aquarum*? The use of such an expression would convey the implicit—but none the less categorical—recognition, that it applies to the watershed pertaining and peculiar to a chain, occurring on the most elevated line, that is to say, the line of the intersection of its two slopes. The Argentine Republic, supported by South American International jurisprudence, does not hesitate to answer in the affirmative, and to sustain that the said Cordillera has its watershed, although it may be traversed by other waters independent of the Cordillera. The Chilian Republic came to a like conclusion in the Administrative Decree issued on November 4, 1885:—

"The Department of Valdivia," it says, "is divided into the following sub-delegations and districts:

"Sub-delegation No. 4, *Corral*. Its boundaries are: on the north, an imaginary line, drawn from the sources of the Santa María rivulet in a westerly direction to the sea; on the east, *the watershed of the Cordillera de la Costa*, and the Río Valdivia from the Cutipay to la Cantera.

"Sub-delegation No. 11, *Cabo Blanco*. Boundaries: on the north, a straight line which, starting from the source of the Santa María rivulet, advances to the west as far as *the summit of the Cordillera de la Costa*; on the east, the whole course of the Santa María to the las Garzas, the latter in its entire length, and the chain of hills commencing at

* Barros Arana, *Elementos de Geografía física*, 1st ed., p. 301.

Revellín Point to the source of the Riachuelo which separates the land of Quitacalzon de las Gareías from that of the Martinez ; on the south, the said Riachuelo in its whole length and the Rio Valdivia to the Cutipay ; and on the west, the latter from its mouth to its source and from thence *the watershed in the Cordillera de la Costa*, until the northern boundary is reached.

“District No. 3, *Molino*. Boundaries : On the north, the entire course of the San Ramon rivulet ; on the east, along the Rio Cruces from the affluence of the San Ramon to where it joins the Valdivia ; on the south, the latter river to the Cutipay ; and on the west the whole course of the Cutipay, and from its source *the watershed of the Cordillera de la Costa*, to the source of the San Ramon rivulet, including the San Francisco islands, the Mota islands and the others separated by the main arm of the Cruces.”

Two principal consequences follow from the paragraphs of the just-quoted Decree, viz. :—

1. That the Chilian Government does not question that it is possible to speak of the watershed of a Cordillera that is here and there traversed by independent rivers.

2. That for the Government of Chile, the expressions *summit of the Cordillera* and *watershed in the Cordillera* are equivalent, since both have been employed to define the same idea, in particularising the boundaries of sub-delegation No. 4, *Corral*.

If these conclusions, if the clauses referred to of the Decrees of the Chilian Government, had been followed by the Chilian Expert, the many difficulties which for some years have paralysed the progress of both nations, would have been avoided. The frontier dispute would have possessed no practical significance.

With reference to the Argentine Republic, she has sought and is seeking, in the actual tracing of the line, the strict application of the Treaty of 1881, in the form which the precedents that gave rise to it explain : in the form intended by its negotiators : in the form indicated by its text : in the form understood by Chile in the first years which followed its approval, when the recollection of the details that accompanied its approval were fresher ; and in the form enunciated in the official records that have been referred to.

CHAPTER IX.

Summary—1. CONVENTION OF 1888.

2. CABINET COUNCIL OF THE ARGENTINE GOVERNMENT OF DECEMBER 24, 1889.

3. DISAGREEMENT OF THE EXPERTS, SEÑORES PICO AND BARROS ARANA.

4. DISAGREEMENT OF THE EXPERTS, SEÑORES VIRASORO AND BARROS ARANA.

5. VARIOUS QUESTIONS SETTLED BY THE PROTOCOL OF 1893.

1. CONVENTION OF 1888.

AFTER the ratification of the Treaty of 1881, some years elapsed without its being duly carried out. The repeated discussions which preceded it ceased for the time being, and it did not appear to be indispensable, at first, to place the landmarks which were to fix the lines agreed upon. Nevertheless, the conduct of the public affairs of a State requires an exact knowledge of its boundaries, and the Argentine Republic, viewing the matter in this light, took the initiative in 1883 by opening negotiations with a view to the commencement of the demarcation. On October 19, the Minister for Foreign Affairs, Señor Victorino de la Plaza, addressed the following communication to the Argentine Plenipotentiary in Santiago:—

“The President is of opinion that the time has arrived for proceeding to trace the boundary line in order to have this point definitely settled; and as it appears certain that to carry out that operation, the intervention of the Experts will be essential, he is also of opinion that they might now be appointed by both countries. In consequence you are authorised to make a suggestion in this sense as you may deem convenient.” *

Had the work been commenced at that time, it is beyond question that the boundary would have been fixed without a hitch, in view of the fact that, in 1883, and even since then, in 1885 and 1888, the Chilean Government had not thought of the Continental *divortium aquarum*, at least officially, as is proved by the laws and decrees already quoted. Unfortunately, this did not happen. The

* Memoria de R.E. de la R.A., 1892., p. 252.

matter remained unsolved, and no measures having been taken for the demarcation, the Minister for Foreign Affairs for the Argentine Republic again communicated, in August 1884, with the Representative in Santiago requesting information with respect thereto. The latter replied, explaining the delay, and stating that he did not think it would continue much longer, as the Chilean Minister for Foreign Affairs had requested him to draw up a draft Protocol.

This, however, was not done. Two years after, on July 26, 1886, the Argentine Minister informed his Government :—

“Your Excellency is acquainted, through my previous correspondence, with the suggestions which, on various occasions, I have addressed to the Chilean Government, with a view to coming to an agreement for the purpose of proceeding with the organisation of the commission of Experts to which the Boundary Treaty of 1881 refers the demarcation on the ground of the boundaries which divide the two countries, as established in the respective clauses of the said Treaty. Persisting lately in similar suggestions, I was informed by the Minister for Foreign Affairs, at a private conference, that he was authorised by the President of the Republic to conclude the suggested agreement, and that he was consequently in a position to commence to act with respect to this long-delayed business. I replied to Señor Zañartu by suggesting that we should give immediate attention to this negotiation.”

The Argentine Government gave instructions to their Minister, and forwarded him the bases for an additional Convention to the Treaty of 1881. Nevertheless, a year later, in 1887, the negotiations had made no progress, in spite of the Argentine Minister having informed the Chilean Government “on every opportunity, of the urgency for concluding the Convention to appoint the commissions for demarcating the boundaries between the two Republics,” as mentioned in the note of December 5 of the same year.

The Government of Chile, however, without giving any decision as to the demarcation, declared themselves desirous of having an independent survey made at some places near the probable line of demarcation ; which fact being made known to the Argentine Government, was objected to by them in consideration of the alarm that such expeditions might cause, whilst the demarcation directed by the Treaty was not commenced. According to the Argentine Government, the survey of the frontier ought first to be entrusted to the Experts. This objection on the part of the Argentine Government caused the Government of Chile in 1888 to agree to the commencement of the demarcation, the supplementary Convention to the Treaty of 1881 being signed on August 20.

This Convention fixed the duties of the Experts, the terms within which the personnel must be appointed, and various rules of procedure.

It must be observed that the intervention of the Experts was limited by the Treaty of 1881 to the following points:—

1. To decide the difficulties that might arise from the existence of certain valleys formed by the bifurcation of the Cordillera, and in which the watershed may not be apparent (Article 1).

2. To fix on the ground the line which, starting from Point Dungeness, shall be prolonged overland as far as Mount Dinero; thence it shall continue westward, following the highest elevations of the chain of hills existing there, until it strikes the height of Mount Aymont; from this point up to the intersection of meridian 70° W. with parallel 52° S., and thence westward coinciding with this latter parallel as far as the *divortium aquarum* of the Andes (Articles 2 and 4).

3. To fix on the ground the line in Tierra del Fuego, which, starting from the point named Cape Espíritu Santo in lat. $52^{\circ} 40'$ S., shall be prolonged southward, coinciding with meridian $68^{\circ} 34'$ W. Greenwich, until it strikes Beagle Channel.

The mission of the Experts was confined to this. According to the terms of the Treaty of 1881, the tracing of the line in the Cordillera was outside their mandate. The Convention of 1888 enlarged their powers, directing in its Article 3 that—

“The Experts shall carry out on the ground the demarcation of the lines indicated in Articles 1, 2 and 3 of the Boundary Treaty.”

In consequence of this injunction the entire Argentine-Chilian frontier, from the extreme north down to the southern limits, was confided to the labour and knowledge of the Experts. The Experts, as such, were obliged to carry out, *on the ground*, the demarcation. The study of the orographic features that constitute the international boundary was, therefore, to be their main object. The theoretic discussions had been within the sphere of the Governments themselves up to the Treaty of 1881. Likewise subsequent to it, the Governments were to be called to intervene in the event of abstract differences arising which might impede the action of the Commissioners engaged in fixing the landmarks, after visiting the ground. The spirit of the clause, considered from this point of view, is perfectly evident. When the old question was settled, no

other divergences were foreseen than what might arise from a different opinion on some geographical fact, and in such circumstances it was natural to have recourse to the personal observation of those who would have the responsibility of tracing the line. It was considered that obstacles would easily be avoided, if the Experts, working together, visited the ground, and studied the Cordillera de los Andes, the high crests of which had been fixed as the boundary.

The clause did not give the expected results, as the Expert of the Chilean Republic never visited the Cordillera during the carrying out of the work, and therefore did not possess direct knowledge of the places in which arose the divergences which have been submitted to the decision of Her Britannic Majesty's Government. The Assistant Commissioners, created by the Convention of 1888, did not exercise, and could not exercise independent powers, as is revealed by the course of the negotiation.

However, imbued with the desire of accelerating the work, the Argentine Government proposed the delegation of powers to the Assistants, but, owing to the *just resistance* offered by Chile, the Argentine Plenipotentiary gave way, and in a note to this effect, addressed to the Minister for Foreign Affairs, stated that—

“With respect to the delegation to the auxiliary corps appointed to effect the demarcation of the boundaries, as suggested in the proposal emanating from the Ministry, which was communicated to me and which has served as a basis for this negotiation, it has been opposed by the Chilean Representative on the ground that a stipulation of that nature would be the means of introducing, without necessity and perhaps with danger, an innovation in the Treaty of 1881, the provisions of which it would be unwise to change, whilst arranging for its execution; and as, on the other hand, I considered his observation to be justified, and recognising that I had to seek my first instructions in the text of the Treaty, the stipulations whereof it was desired should be carried out, I could not hesitate in reserving to the Experts the duty of fixing by themselves, *on the ground*, the lines of demarcation, as is peremptorily established in Article 4 of the Treaty I am referring to. The matter was, therefore, settled in this way, as Your Excellency can see in the respective clause of the Convention entered into.”

The Experts, and only the Experts, were invested with “the power of fixing by themselves, on the ground,” the boundary line; and it is to be deplored that the Argentine Expert, when surveying the Cordillera, should have been unable to study the orography of the frontier regions with his colleague, the latter not having even visited the ground.

The Convention of 1888 which arranged the demarcation, stated that it should be ratified “as soon as possible” (Article 10), but a year elapsed prior

to its being sanctioned by the Chilean Congress, which approved it after the Argentine Congress, and the ratifications were exchanged on January 11, 1890.

Within two months from that date (Article 1), the Governments were bound to nominate the Experts. The Argentine Government hastened to appoint Don Octavio Pico, in June 1889. The Chilean Government appointed in 1890, Don Diego Barros Arana, who had carried out the negotiations in 1876 and 1878, which form a valuable antecedent of the Treaty of 1881.*

The demarcation was to be commenced forthwith.

2. CABINET COUNCIL OF THE ARGENTINE GOVERNMENT OF DECEMBER 24, 1889.

After the signature of the Convention of 1888, but prior to its ratification (and, consequently, prior to the initiation of the work), the continental divide began to be spoken of in Chile.

It has been already stated that the Spanish navigator Juan Ladrillero, in 1557, advanced from the Pacific by water through the Cordillera de los Andes, and he remarked the fact that in lat. 52° the range was separated by waterways or *canales* from the plains which extend to the Atlantic Ocean. Lieutenant Skyring and Mate Kirke, of the British Navy, and Lieutenant Rogers of the Chilean Navy, confirmed this fact before the publication of Ladrillero's report, a fact known to Señor Barros Arana and his assistant Señor Alejandro Bertrand, who prepared the sixteenth century facsimile map which is annexed to Ladrillero's account, and in which, although the Cordillera is erroneously drawn to the east of the spot where Ladrillero places it, there appear the "Plains of Diana."

Therefore, when the Treaty of 1881 was signed, it was not unknown in Chile that the watershed of the Andes in this region was in the Cordillera to the west of the waterways. In 1884, Señor Bertrand, by order of his Government, visited this part of Patagonia, one of the principal objects of his journey being to fix the point of intersection of parallel 52° with the watershed of the Andes.

* The information respecting the negotiations for the Convention of 1888 are found in the *Memoria de R. E. de la R. A.*, 1892.

According to the exploration of Señor Bertrand,* it appears that—

P. 72.—“The general level of the chain of the Andes becomes gradually lower from the Bolivian Plateau and the Atacama Sierra, where it rises to a height of 4000 metres, to the Inlet of Reloncavi, the first entrance made by the sea among its crests, as the volcano Calbuco is situated to the west of said inlet. From this point the Cordillera is continued partly on the continent, partly on the islands; IT SHOULD BE NOTED THAT THE VALLEYS OF THE RIVERS PALENA, AYSEN, HUEMULES AND BLANCO CROSS IT FROM ONE SIDE TO THE OTHER until it terminates north of Last Hope Inlet, between lat. 51° and 52° S.; at this point all the continental mountain ridges are intersected by the marshy Plains of Diana, which extend from Bahía del Desengaño (Disappointment Bay) as far as the western sources of the river Gallegos. In this latitude, and to the south of this break, the numerous snow summits of the Andes are scattered throughout the many islands and peninsulas divided by the tortuous western channels of Patagonia.”

Señor Bertrand suggested a fresh boundary completely extraneous to that agreed upon in 1881. The watershed of the Andes to which the Treaty referred was that of the high Cordillera de los Andes; no one had ever doubted this, and this watershed was to the west of the sea channels discovered by Ladrillero, and which were explored by the ‘Beagle,’ as stated by a Chilean historian whose word is authoritative in Chile. †

P. 132.—“The dominion of Chile over Eastern Patagonia,” continues Señor Bertrand, “begins at parallel lat. 52° at the point where this parallel is intersected by the *divortium aquarum* of the Andes. It is this point of separation which it is important to ascertain and to establish, and the discovery of it was one of the principal objects of our exploration; this, however, has served only to confirm a fact asserted for more than three centuries and which seems to have been forgotten in the drawing up of our Boundary Treaty, namely that the Cordillera de los Andes loses its continuity upon reaching the Patagonian region. Its summits are scattered throughout the numerous islands and peninsulas of the western channels; the *divortium aquarum* of the waters which flow into both oceans is frequently found to separate from the Cordillera’s broken ridge and to remove further to the east, sometimes reaching even to the level

* Memoria sobre la Region central de las Tierras Magallánicas, presented to the Minister of Colonisation by Alejandro Bertrand, with map, Santiago de Chile, 1886.

† Gonzalo Bulnes, Chile y la Argentina, Santiago de Chile, 1898. At p. 49 he says: “The Yrigoyen line started from Cape Virgenes in the Atlantic to Mount Dinero; from thence to Mount Aymond; from Mount Aymond to Mount Palladion; from thence until it touched the *divortium aquarum* of the Andes in parallel 52° . The difference between this line and that adopted in 1881 is that this latter passes ten minutes to the north, between Mount Aymond and Mount Palladion.” The line of 1881, instead of cutting Mount Palladion, was to cut Mount Rotunda, situated a little to the north of the former, and to be prolonged, according to Señor Bulnes, as far as the *divortium aquarum* of the Andes, and therefore across the channels in order to reach the Cordillera.

region of the Pampas. This occurs more especially in the vicinity of parallel 52° , where the plain extends from one ocean to the other."

P. 134.—"From our own observation we may corroborate this fact, that the whole mountain land on the Continent in the region in question is broken, and assert that north of parallel 52° a perfectly level space of a minimum extent of ten miles exists. This plain (Plains or Marshes of Diana) we saw from two different points, first from the summit of the Penitente ridge, from where we also saw various inlets of Disappointment Bay; and afterwards from the Deslinde cliffs, the elevation of which, though insignificant, rises above the horizon of these plains, which at their greatest height certainly do not exceed 250 metres above sea-level. We did not at that time go further away than thirty miles from Disappointment Bay, whose shores were, however, inaccessible to us by reason of the impassability of the marshes between us and them.

"It has, therefore, been conclusively demonstrated that in lat. 52° the Cordillera de los Andes shed all the waters of its slopes into the Pacific, and that the Continental *divortia aquarum* must be sought east of it, IN THE EXTENSIVE PLAINS FORMED BY THE WESTERN TRIBUTARY OF THE RIO GALLEGOS.

"The point, necessarily somewhat indefinite as owing to the plain and marsh of this region, at which the *divortia aquarum* crosses the parallel, is to be found at the northern foot of a wooded mountain, crowned by volcanic rocks, and which terminates on the south in the Penitente ridge, and the approximate situation of this said intersection must be at the meridian of 72° , very near the coast of the channels, approaching, according to our investigations, in Disappointment Bay, to within ten miles of the meridian named."

From these observations of Señor Bertrand two facts are derived, which it is advisable to point out to the Tribunal :—

1. That if the negotiators of the Treaty of 1881 overlooked that the continental *divortium aquarum* does not occur in the Cordillera de los Andes, there is no doubt that they did not stipulate that continental *divortium aquarum* : and therefore the boundary could not be carried along it, as this would necessitate abandoning the barrier agreed upon.

2. That Señor Bertrand had two standards by which to interpret the words *divortium aquarum*. In the case of the international boundary, it is the continental that he adopts, and no other: in the case of internal lines within Chilian territory, he adopts the *divortium aquarum* in its usual and logical meaning. In the same book from which the passages quoted are taken, there occur the following amongst the other analogous paragraphs which give Señor Bertrand's second standard of opinion :—

P. 77.—"To the north of the Beagle 'Cerros,' on the eastern coast of Skyring Water, there reappears the level or little undulated ground, and forms a beautiful tract which gradually ascends towards the *divortia aquarum* with the Laguna Blanca."

P. 78.—“From Rio del Pescado on the north, no arboresecent vegetation is met with in the whole Patagonian strip, whose waters fall into Magellan Straits. Isolated coppices are found to the north of the group of Lagunas de los Palos, in the form of Palomares, and in the *culminating* part of the *divortia aquarum* with the Laguna Blanca.”

The Laguna Blanca, as is shown herewith, in the reproduction from Señor Bertrand's map, is a *closed lagoon with no outlet*, similar in character to Laguna Verde near parallel 27° S. between the “cerros” of Tres Cruces and San Francisco; the fact that the latter has no outlet is due to the rapid diminution of its waters. The difference in altitude of the watershed between the stream of Los Patos and the watermark of the lagoon is not more than forty metres (131 feet), and even less than that which exists between the lagoon and the “Chorrillo de la Descarga.” One interpretation is given to the watershed when it is a question of sources supposed to be situated within Chilean territory, and quite another when it is considered as an international boundary, and according to this idea a suggestion was even made by Señor Bertrand not only to carry the boundary along the eastern foot of the Cordillera, as had been proposed in 1866, but to take it completely outside the Cordillera into the plains of the Pampas.

Other openings through the Andes having been discovered by Chilean explorers, it became known that the valleys to the east of the Cordillera, watered by streams and rivers which passed through to the Pacific, were the most fertile of Patagonia; the expeditions of Lieutenant Serrano Montaner to the upper course of the river Palena had shown this fact.

This expedition caused some stir in Chile, and the European geographical centres were informed of the noteworthy fact of the discovery of another river completely piercing the Cordillera.

At the same time, through an expedition sent by the Chilean Government, the corroboration was reported of Lake Lacar being situated to the east of the Cordillera de los Andes, although its waters flowed into the Pacific Ocean—a fact which had been previously revealed by Señores Frick and Cox.

Dr. R. A. Phillippi, Director of the National Museum of Santiago, had sent the following communication to the *Globus*, respecting the journey of Señor Serrano Montaner :—

“The expedition which, under instructions of the Chilean Government, was, in the course of this summer, to explore the Rio Palena, re-entered Puerto Montt on February 12, 1887, bringing home better results than its two predecessors achieved. The

almost to the middle of the continent. For the first time Mr. Serrano succeeded in making his way through between the mountains of the fore-Andes, indicated by the several volcanic cones of Osorno, Calbuco, Hornopiren, Corcovado, Molimoyu and others. Next, crossing a plain of extraordinarily vast extent, he reached a continuous chain covered in many parts with perpetual snow on the middle Andes. The river breaks through this wall in a narrow valley, whence onwards it becomes very rapid. The forest then grows lighter, and the trees between the grass plains are more distributed in groups. The vegetation is different from that of the coast." *

Petermann's *Mittheilungen* † and the *Scottish Geographical Magazine* ‡ announced the same fact :—

"The Chilian Captain Serrano has, within quite recent years, conducted two explorations of the river Palena, a stream which flows into the Gulf of Corcovado, south-east of the Island of Chiloe. The Palena is, it seems, a more important waterway than was hitherto supposed, for it has in its lower course a width of 2625 yards, and is navigable for a considerable distance. From Serrano's second trip, and from an investigation conducted by the Government of Chile, the remarkable fact has been ascertained that the water-parting between the Atlantic and the Pacific slopes in those regions *is not coincident with the main chain of the Andes, but it is a plateau lying to the east of it*, and having an altitude of some 1640 feet. The rivers which rise at its foot and flow into the Pacific, issue from small lakes and pierce the Cordillera in difficult ravines. The country between the eastern slope of the Andes and the plateau consists of pampas, well suited for cattle. This discovery of the true watershed will affect the boundary line between Chile and the Argentine Republic; for by Treaty that line shall run along the highest peaks of the Andes which mark the water-parting.' (Petermann's *Mittheilungen*, 33 Band, No. 8.)"

The Royal Geographical Society, which had published the account of Cox's journey, also published in its Proceedings, the results of Señor Serrano Montaner's exploration § confirming his discovery :—

"The discovery by Don Guillermo Cox on his journey to the source of the Limay, a quarter of a century ago, that the main chain of the Andes did not in that part of Chile form the watershed between the rivers flowing respectively to the Atlantic and the Pacific Oceans, has been corroborated by an expedition sent out by the Chilian Government to those latitudes; this expedition having proved that certain rivers flowing into the Pacific Ocean *rise to the east of the Andes, in a plain at the comparatively low altitude of 1650 feet above the sea-level*. These rivers spring from small lakes, and *cut their way through the Cordilleras* in deep gorges. Thus, while the Limay, a tributary of the Rio Negro flowing

* A summary, by Dr. R. A. Philippi, of the Report of Serrano's Expedition to the Rio Palena, in *Globus*, vol. 51, 1887, p. 304. † Vol. 33, 1887, p. 253. ‡ Vol. 3, 1887, Edinburgh, p. 488.

§ Breaks in the Andean Watershed of Southern Chile, vol. 9, 1887, p. 580.

into the Atlantic, rises on the west of the main ridge,* numerous Pacific streams rise on the east. Another important stream, the Palena, which rises to the east of the Andes and disembogues into the Gulf of Corcovado, opposite the southern end of the Island of Chiloé, has been recently explored by Captain Serrano, who ascended it in a boat as far as long. 72° . The Palena proves to be navigable for some distance from its mouth, and in its lower course is half a mile broad. These discoveries will affect the political boundary between Chile and the Argentine Republic which had been fixed by Treaty as lying along the watershed."

The Minister of the Interior, in a Report presented to the Chilean National Congress in 1889, in accounting for the expenditure of sums voted in the estimates of the previous year, stated, on pages 56-60, that :—

"The explorations carried out at various periods in the valley of the river Buta Palena, situated in lat. $43^{\circ} 40'$ S., and particularly the one made in 1885 by the then Sub-Director of the Hydrographical Bureau, Don Ramon Serrano Montaner, in virtue of the commission entrusted to him by the Ministry of War and Colonisation, the account of which was published in vol. 10 of the *Anuario Hidrográfico*, caused the Ministry to select this valley as the most appropriate place for the foundation of a township and an agricultural colony, which might develop the considerable extension of our southern continent, up to now unpopulated. According to the reports collected, the river, owing to its volume of water, is navigable for boats which can cross the bar which exists at its mouth, it being sufficiently deep. The Cordillera de los Andes divides in this latitude into three great chains, WHICH THE RIVER TRAVERSES IN ITS COURSE, forming between the central and eastern chain a longitudinal valley, very extensive, which apparently traverses a zone of considerable breadth on the north and south of the lake which gives rise to the river. . . . With a view to favour the new township, and to assure an outlet for its products and supplies, the Ministry hastened to enter into a contract, approved by Decree of February last, with the *Compañía Sudamericana de Vapores*, for a monthly trip between Mellipulli and Palena, calling at the Island of Chiloé."

These expressions attracted the attention of the Argentine Government. A valley situated on the east of the central chain of the Andes was considered as Chilean territory; the Buta Palena, in its entirety, was considered to be a Chilean river, although it was seen that it traversed the three chains into which the Andes divides in that latitude, according to the Chilean Minister; in a word, the boundary of the summit of the Cordillera was removed and carried much farther to the east.

The Argentine Minister for Foreign Affairs arranged for the despatch of an expedition, to inquire whether Chilean settlements did actually exist in the

* This erroneous idea regarding the Limay, is derived from ancient reports on the existence of another interoceanic water communication, to the west of Lake Nahuel-Huapi, source of the Limay.

valleys of the Palena, on the east of the Andes; and with reference to the main question, he set forth at the Cabinet Council the difficulties which might arise, if, as seemed to be derived from the Report quoted, the Chilian Government considered that the agreed on orographic boundary in the Cordillera de los Andes was to be transformed into a hydrographic boundary which would only take into consideration the sources of the rivers flowing towards the Pacific. The Department of Foreign Affairs was then in charge of Señor Estanislao S. Zeballos, whom the Chilian Representative considered to be a partisan of the continental *divortium fluminis*. His views on this point demonstrate that, on the contrary, he considered such a doctrine of serious consequence, owing to the interests at stake. The Argentine Ministerial Archives contain the "Report written and presented to His Excellency the President of the Republic in Cabinet Council of December 24, 1889, on the state of the relations existing between Chile and the Argentine Republic and its future result." In it are to be read the following precise and significant paragraphs:—

"The gravity of the facts which I have the honour to submit to the consideration of Your Excellency and that of my colleagues in the Cabinet, has induced me to present the matters to be discussed in this Cabinet Council in a written form with the object of leaving in the Archives of the Department of Foreign Affairs precise antecedents regarding the means adopted for the defence of the interests and the sovereignty of the nation in its relations with the Republic of Chile. . . .

"5. Some of these rivers, such as the Vodudahue, Corcovado, Huemules, Aissen and Palena, flow at the foot of the Cordillera on the eastern side, and, passing through its gorges, fall into the Pacific.

"Referring to the ante-Cordillera, or merely sierra, Captain Simpson says in his Report: '*This secondary sierra, or ridge, constitutes the real division of the waters; and it is for this reason that rivers like the Aysen are found, which, rising in the other side, completely traverse the Andean range.*'

"He adds further on: 'May the experience acquired not be lost, and may our Government soon profit by the great advantages offered by this new route *which places a vast and beautiful region* under the effective sway of the laws of our Republic.'

"The Chilian Government did not keep this secret, and in 1875 their official Anuario Hidrográfico published all the reports and numerous maps of the expedition. . . .

"According to the Treaty, by the line of the most elevated crests is meant that line which runs along the greatest elevations of the mass which forms the backbone of the Cordillera, although said mass may be cut through by transverse clefts or valleys.

"The Treaty refers to crests which must possess two conditions: (1) they must be the most elevated; (2) they must divide the waters.

"Said crests are snow-capped, and in the epoch of the thaws they divide their own icy streams, which flow down their flanks and bases.

“If the *divortium aquarum* of the Cordillera always flows into the Pacific, as Engineer Bertrand observes, and as is seen on my map, it is none the less true that said crests are the most elevated crests that divide the waters, referred to by the Treaty.

“If there should happen to be quebradas (gorges) between some of these crests which divide the waters, in such a case the right thing would be to follow the ideal line of the massif until striking the watershed anew.

“Chile, however, abandons the backbone of the Cordillera, and straying away through one, and perhaps two degrees, into Patagonia, stops in a series of valleys and lakes situated at the foot of eminences which are not always continuous, and are formed perhaps by undulations connecting isolated mountains like Mounts Zeballos and Belgrano, eminences which naturally also form the sources of rivers and streams. Chile follows along some of these streams, as for instance the *Buta-Palena*, *Aissen* and *Huemules*, etc., and finds that they reach the eastern foot of the Cordillera de los Andes, and, flowing through gorges or gaps in the range, fall into the Pacific.

“She then claims a boundary running through Patagonia, over said valleys and lakes, which, although by a regional accident they may shed waters, are not *the most elevated crests* mentioned in the Treaty.

“We have not yet a satisfactory knowledge of the system of the waters in the above-mentioned Patagonian region, but by fixing on the map various points already determined in the Chilean works, it will be seen that said Republic claims the valleys which extend from parallel of lat. 41° S. to 52° S., besides others which she may also wish to claim further north, in front of the Neuquen territory. . . . The debate will begin by the disagreement of the Experts on the ground; it will then be transferred to the Departments of Foreign Affairs; the two nations, being aroused, will adopt a defiant attitude towards each other; and finally we shall have to choose one out of four solutions, viz. *That the question be left in abeyance*, an infructuous proceeding, when it is not founded on transitory or organic physical weakness; *a war*, which both countries are interested in avoiding; and *a compromise* or a solution, leaving the Patagonian valleys to the Argentine Republic, and the Pacific ports or landlocked bays to Chile, a possible outcome of a moderate policy, and which would satisfy joint aspirations. The fourth solution foreseen in the Treaty, would be something in the shape of arbitration, the submitting of the question to a third Expert.”

Minister Zeballos did not refer, on that occasion, to “the hydrographical basins” or to the “continental divide,” because this new terminology had not yet appeared in the Chilean documents. It sufficed for him to know that there was a project for settling a colony in the Palena valley—although the Chilean Government recognised that the river Palena crosses through the Cordillera—in order to perceive the Chilean tendency to suppress that Cordillera and to consider it as a secondary feature in the demarcation of the boundary line. This was the cause of the despatch of the Argentine expedition for the purpose of positively ascertaining whether the colony existed, of the Report read at the

Cabinet Council, and of the communication of January 8, 1890, addressed to the Argentine Plenipotentiary in Santiago, in which it was stated that—

“The good feeling which, happily, unites the two nations, and the loyalty of which we do not cease to give evidence in the performance of the Treaty of 1881, authorise us to hope that the Government of Chile will remain quiet on the west of the line of the most elevated crests, abstaining from all administrative acts having an appearance of anticipating the result of that which the Treaty requires should, in due time, be settled by the Experts. The antecedents relating to the explorations of the Buta Palena have been published in vol. 11 of the *Chilian Anuario Hidrográfico*. It is necessary to advise Your Excellency that the remarks solely refer to the portion of the territory which lies on the east of the highest crests of the Andes. . . . But, and without prejudice to that which it may be expedient to do later on, according to the turn of affairs, I recommend Your Excellency to lose no opportunity of hinting, in the most discreet manner, to the Minister of Foreign Affairs of that Government, that it is necessary to abstain from all action and colonisation, loyally awaiting the decision of the Experts which cannot be long delayed.”*

The alarm caused by the Report of the Chilian Department of the Interior in 1889, was speedily quelled, owing to the following causes:—

1. The Convention of 1888 having been approved, the Experts were in a position to carry out the work of demarcation on the ground, as had been stipulated, and it was hoped that their decision, subject to the clauses of the Treaty of 1881, and to the personal study of the geographical features, would remove every obstacle.

2. The Minister for Foreign Affairs of the Argentine Republic and the Chilian Plenipotentiary in Buenos Aires made a reciprocal declaration according to which “every act of either Government which should extend their jurisdiction towards the *portion of the Cordillera* which was of doubtful dominion, owing to the fact that the Experts had not yet traced the definitive boundary, would not affect the results of the demarcation which was to be laid down in accordance with the Treaty of 1881.”

3. The expedition sent by the Argentine Government returned to Buenos Aires bringing satisfactory information. The valley of the Palena situated to the east of the central chain of the Andes, that is to say, where the Argentine colony of “16 de Octubre” was developing some years before, had not been occupied by Chile.

* Memoria de R. E. de la R. A., 1892, p. 279.

3. DISAGREEMENT OF THE EXPERTS, SEÑORES PICO AND BARROS ARANA.

The Experts were to meet in the city of Concepcion forty days after their appointment, to agree as to the starting point or points of their work and about whatever else might be necessary. (Convention of 1888, Art. V.) The first Conference—of April 20, 1890—was confined to the presentation of their respective credentials, and the introduction of the respective assistants. In the following ones, it was decided that the work should commence concurrently in the north in the Cordillera de los Andes, and in the south, in Tierra del Fuego, and that, in order to carry it out together, the Commissions charged with projecting the boundary in the Cordillera, should meet in the city of Santiago any day during the month of October 1890.

The Argentine Expert then returned to Buenos Aires to prepare the indispensable elements for the carrying out of what had been agreed upon; and, in July of the same year, he received a communication from Señor Barros Arana inviting him to co-operate, by means of correspondence, in defining the instructions to be observed on the ground by the Commissions of assistants, expressing, to this end, the convenience of previously discussing the interpretation of the Treaty, so that the requisite instructions to be given to the assistants might conform with the decision which might be arrived at. The form in which the desire was expressed, caused the Argentine Expert to think that the invitation to discuss the interpretation of the Treaty might indicate the design of modifying its injunctions in such a way as to elude the fundamental rule.

This fear, and the belief held by him that the Experts had to undertake, before and above everything else, the study of the features of the ground, compelled him to reply—in a note dated July 29, 1890—that he was surprised at the invitation to make a theoretical examination of the Treaty, as he understood that the question as to the boundaries between the two countries had ended in 1881, and that, consequently, the discussion was closed, nothing being left for the Experts to undertake except the technical, expert work, the tracing on the ground of the boundaries, literally interpreting said international covenant. The Argentine Expert, Señor Pico, added:—

“To study the facts, to draw up plans giving every detail, carefully and principally indicating thereon the features designated in the Treaty, so that the boundary could be fixed

without hesitation; that, in my opinion, constitutes the Expert's duty; to work, not to discuss. . . . But, so long as the case does not arise, so long as the fact constituting the difference of opinions is non-existent (if it ever should exist) it seems to me, at least, premature to reopen the discussion on the Treaty, explaining the interpretation of a text, as to the meaning of which there has not been the slightest contradiction. This might almost be considered as a want of knowledge as to the efficacy of the Treaty. . . . To state in a memorandum the meaning attached to the Treaty by one of the Experts would be, perhaps, to provoke contradiction on the part of the other, and to anticipate graver difficulties than those, the remote possibility of which is foreseen in the Treaty, and to anticipate them on grounds which were not and could not have been foreseen: on theoretical grounds. And then I do not know what legal recourse could be taken respecting our divergence in the interpretation of the Treaty."

The discussion stopped there, for the moment. Various causes prevented the meeting of the Commissions, as arranged, in October 1890—and, afterwards, internal political complications in Chile and civil war resulted in Señor Barros Arana being relieved of his functions as Expert, which caused the appointment of Señor Don Domingo Gana, at present Envoy Extraordinary and Minister Plenipotentiary of Chile at the Court of St. James, and at that time accredited in Germany. The work of demarcation was in the meantime suspended.

After the triumph of the revolutionary arms in Chile, Señor Barros Arana was reinstated as Expert, and he communicated the fact to his Argentine colleague, informing him that his Commission of assistants had been reorganised and that he was desirous of receiving due notice as to when the Argentine Expert, in his turn, would be ready to resume the interrupted work. Señor Pico left for Santiago with the staff of assistants appointed to work in the north, in the Cordillera de los Andes. The other staff, appointed to work in the south, went directly to Tierra del Fuego, to wait there for the Chilean Commission.

On the arrival of Señor Pico, certain differences arose, the details of which he communicated to his Government in a note, which contains the following paragraphs:—

"I have already reported to the Government all that took place in this Conference (of January 12, 1892), all of which is written down in the draft record of same which I drew up, and is as follows:—

"In Santiago, Chile, on January 12, 1892, the Experts Don Octavio Pico, for the Argentine Republic, and Don Diego Barros Arana, for Chile, having again met, they held a conference in the International Boundary Office, in order to arrange about the Instructions to be given to the assistant Commissions of both nations which were to work in the determination and tracing of the frontier in its northern part and in Tierra del Fuego, and agreed as follows:—That the northern Commission, composed of the Argentine assistants

Don Julio V. Diaz, Don Luis J. Dellepiane and Don Fernando L. Dousset, and the auxiliary Don Dionisio Meza, with the Chilean assistants Don Alejandro Bertrand who have the respective authority and category given them by the order in which they are named, shall have the following instructions.

“*First* and fundamental instruction.—The strict application of Article 1 of the Boundary Treaty of 1881 in the part within their competency, and which says: ‘The boundary between the Argentine Republic and Chile is from north to south as far as the parallel of lat. 52° S. the Cordillera de los Andes. The frontier line shall run in that extent along the most elevated crests of said Cordilleras that may divide the waters, and shall pass between the slopes which descend one side and the other.’

“*Second*.—Whenever the most elevated crests of the Cordillera de los Andes are formed by plateaux or high tablelands, the highest points of said tablelands shall be sought by means of levelling, and the line shall run over said points.

“*Third*.—Although these or any other of the most elevated crests of said Cordilleras may be inaccessible, they shall always be the actual boundary between the two countries.

“*Fourth*.—If the case foreseen by the Treaty were to present itself, viz. that of finding ‘valleys formed by the bifurcation of the Cordillera and in which the watershed may not be apparent,’ the mixed Commission shall draw up an exact map setting forth the circumstances and shall submit same to the consideration and decision of the Experts, without fixing on the ground surveyed any definite boundary mark. . . .

“All this (with the exception of bases three and four for the northern Commission) had been agreed upon with the Chilean Expert, and nothing was wanting but to sign the record of agreement and put it into execution; when on proceeding to sign it, my colleague, who had agreed with me to give Article 1 of the Treaty as it stood, as a first instruction to the assistants in the north, stated that he wished to determine its meaning, and declared that the boundary line between the two countries should pass along the watershed, although it were necessary for same to depart from the most elevated crests of the Cordilleras.

“I pointed out to the Chilean Expert that the first of the bases agreed upon the previous day tended to avoid interpretations, and that if we entered into discussions we should frustrate all our work.

“But as the Expert insisted, I opposed his interpretation, seeking to demonstrate the error he committed in view of the letter of the Treaty, which had been understood in like manner by all the statesmen of my country who had been in office since the Treaty was signed, among them Dr. Yrigoyen, the negotiator of the Treaty; and I likewise referred him to several opinions of Chilean authors.

“The Chilean Expert adduced examples of other countries in order to prove that the watershed should form the boundary, although the Treaty provided that same should be formed by the most elevated crests of the Cordilleras.

“Not being able to agree on interpretations of such a contrary character, we decided to suspend the work and to submit the points of our disagreement to the decision of our respective Governments. I then invited the Chilean Expert to draw up a record, setting forth all that had passed between us; to which he replied that it would be preferable for me to do so in a note addressed to him, to which he would object, if necessary. Although this manner of drawing up records seemed to me strange and unusual, I made no objection, as I considered that by assenting I should attain my object.

"On the same day I handed to the Chilean Expert the note agreed upon, which contained nothing but the statement of what had taken place on that day, excepting the name of the Chilean author quoted, Don Carlos Walker Martinez. To this note, the Chilean Expert replied in a very extensive note dated January 18, having advised me in a private letter dated the 14th, that he had written it hurriedly, and that as it was very lengthy the clerk would take a long time to copy it. I received it on the 19th."

The Instructions drawn up by Señor Pico contain the rule for the marking out of the line running along the most elevated crests of the Cordillera de los Andes, as ordered by the Treaties.

Regarding these Instructions, in the above-mentioned note of January 18, the Chilean Expert said to his colleague:—

"According to what we arranged the previous day, you presented to me on January 13, a project of the Instructions that had to be given to the engineers entrusted with the demarcation of the northern part of the divisional line. After a very rapid perusal, and desirous to consult on the mentioned project the engineers of the Commission who were to take part in this work, so as to introduce into it the modifications in detail which might be deemed necessary, I expressed to you that I considered it indispensable to introduce another clause with a view to prevent obstacles and difficulties in the work, and to confirm the general rules to be followed during the entire performance of our mission."

These words intimated:—

1. That the Argentine Expert fulfilled the obligation entered into on the previous day, of submitting draft instructions for the assistants entrusted with the demarcation in the northern part of the boundary line; and

2. That in said draft nothing of a fundamental nature was objected to, and that the Chilean Expert only remarked the absence of one Article.

Moreover, Señor Barros Arana, in his note of January 18, expounded his manner of construing the Treaty, with a long array of arguments which, however, lacked the necessary clearness in their conclusions. It is true that he says therein that the boundary must run along the watershed, but without establishing positively whether said watershed is the continental one, or that of the Cordillera de los Andes. Notwithstanding this, the note gave rise to alarm, all the more so because it set forth that "as the boundary line must pass between the springs* which descend one side and the other, it is evident and unquestionable that said

* The Spanish word is *vertientes*, which means "slopes," but Señor Barros Arana gives it the incorrect sense of "springs," or "sources." His intention is made obvious when he adds "any spring, whether it be a river or a mere stream."

line cannot, and must not, cut any spring, whether it be a river or a mere stream." This was equivalent to the exclusion of the orographical boundary, in order to take into account only the river sources, wherever they might be found.

To sustain that a river is Chilean in its whole extent, for the sole reason that it disembogues into the Pacific Ocean, is equivalent to pretending that it is useless for the Treaty of 1881 to mention the Cordillera, and that it is likewise useless for it to speak of the most elevated crests; it is equivalent to taking the Treaty to pieces, and mutilating it, in order to choose the phrases and expressions which might best serve the doctrine and to repudiate those which might not be in harmony with it.

The note of January 18, 1892, seemed all the more strange, since Señor Barros Arana, who signed it, had taught as a geographer that the division of the hydrographic basins might be merely a plain, knowing therefore that such line is inconsistent with the categorical prescription of an international agreement which makes it compulsory that a Cordillera be followed as boundary. It was also strange since Señor Barros Arana, as Minister Plenipotentiary, said in 1877: The boundary between the two countries to the north shall be the summits of the Cordillera de los Andes, whether fixed in the most culminating parts or in the lines of watershed; and it was likewise strange since Señor Barros Arana was the negotiator who settled the bases of the Arbitration in 1877, in accordance, as he said, with instructions received, among which figured the following one: *Whenever the Andes divide the territories of the two Republics, the loftiest crests of the Cordillera should be considered the line of demarcation between them.*

The divergence which had arisen between the Experts complicated the fulfilment of their mission. Whilst the Argentine Expert desired that, as instructions to the assistants, the text of Article 1 of the Treaty of 1881 should be given to them, the Chilean Expert maintained that the frontier was to be fixed in the sources of rivers, and in nothing but the sources of rivers. The Argentine Government was much concerned about the difference, which stopped the work and even threatened to degenerate into a conflict, although it is to be noted, the Chilean Government had not adopted the views of their Expert.

The President of the Argentine Republic, Señor Carlos Pellegrini, summoned a Cabinet Council on January 30, 1892, in which the Minister of Foreign Affairs, Señor Zeballos, read a Report in which he fully considered and discussed the theories put forward by Señor Barros Arana. The Minister, Señor Zeballos, said:—

"The gravity of the matter, and the expediency of leaving in the Archives of the Department of Foreign Affairs a clear documentary statement of everything connected with it, have decided me to lay this Report before you in the present Cabinet Council called for the purpose of taking into consideration the profound disagreement which has arisen between the Experts of the Argentine Republic and Chile, who had met in Santiago in order to commence the demarcation. . . .

"In international law, as in the Treaty of 1881, when an immense Cordillera stands between two nations, on what part of it should the boundary run? On the central massif, leaving the valleys on either side under the respective sovereignties. What criterion is to guide the demarcators in dividing the central massif? The division of its own waters, which it is not possible to confound with the watersheds of other minor chains of mountains connected with the massif or independent of same, nor with the *divortium aquarum* of the eastern plains, although waters may flow from them into the Pacific, through purely local and accidental geographical circumstances, which do not furnish a general rule to science or to the law of nations."

The President of the Argentine Republic regarded the matter with the importance it deserves and resolved to explain it personally with the object of definitely determining what interpretation the Government gave to Article 1 of the Treaty of 1881, the scope of which had given rise to the divergence of opinion between Señores Pico and Barros Arana.

"For the *bona fide* interpretation of the Treaty of 1881," said Señor Pellegrini, "it is essential always to bear in mind the fundamental principle of the Boundary Convention. . . . As the Cordillera is the dividing line, and as this is not a mathematical line, but a belt of varying width, the line should, theoretically speaking, pass through the centre of the Cordillera; yet as this was practically impossible, it was necessary to lay down a graphic basis in order to mark it out on the ground, and it was stated that: 'The Cordillera is the boundary, and the dividing line shall pass (within the Cordillera) over the most elevated crests that may divide waters.'

"These two expressions 'cumbres mas altas' and 'division de aguas' (most elevated crests and division of waters) are inseparable.

"Most elevated crests cannot be understood to mean the most elevated *peaks* to be found detached from the mass of the Cordillera on one side and on the other, but the line of the most elevated sierras of the various sierras which constitute the Cordillera, and the dividing line in these sierras shall pass between the slopes which pour their waters to the east or to the west.

"A line drawn thus would be in harmony with the spirit and the letter of the Treaty, because it would respect the Cordillera as a boundary, and would mark out the line over the most elevated crests and between the division of their waters.

"To look for the division of the waters over other crests and to lay down that the line may in no case intersect a current of water, is to depart from the terms of the Treaty and to establish arbitrary conditions which may, as applied to the ground, involve forgetfulness of the fundamental basis of the Treaty, and by passing over the whole

of the Cordillera, lead us to seek for the dividing line in the Patagonian Pampas, which would evidently be contrary to the final Convention, which was confirmed by the Treaty.

“‘The most elevated crests which may divide waters,’ or ‘division of the waters by the most elevated crests’; however the idea may be expressed, it is obviously indispensable that the two facts should agree in order to be able to mark out the line.”

The discussions of the Experts in regard to the theoretical interpretation of Article 1 of the Treaty involved the postponement of the work of the Sub-Commissions entrusted to conduct their operations in the north on the Cordillera de los Andes, but it in no way hindered the marking out of the boundary line in Tierra del Fuego, the starting point, direction and termination of which line afforded no pretext for divergence of opinion.

Notwithstanding this, and although the Argentine party had been for some time on the spot, waiting for the Chilean party to commence the work, the Expert Señor Barros Arana did not think fit to deal with the point until he knew how the Governments regarded that interpretation attributed to Article 1, which was extraneous to the point at issue.

The misunderstanding assumed such a form that the Expert operations had to be given up and substituted by diplomatic proceedings.

Señor Pico acquainted the Argentine Government with the condition of affairs, and in reply received the following instructions by telegraph:—

“Should the Expert of the Republic of Chile still persist in his irreconcilable attitude towards the letter of the Treaty, Señor Pico shall consider as at an end his mission in that Republic, and shall announce to his colleague, in writing, that he has received orders to return with his assistants.”

These instructions were communicated to the Argentine Minister in Santiago, who had a conference with the Minister of Foreign Affairs of Chile, and with the President of that Republic, which resulted in an agreement between the Ministers being arrived at by which this, the first attempt to remove the boundary from the Cordillera de los Andes, was annulled.

What the Chilean Expert has refused to accept was accepted by the Chilean Government, by the President and his Ministers. Referring to the conferences which took place with them, the Argentine Minister, Señor Uriburu, telegraphed on February 22, 1892, to the Argentine Government as follows :—

“We agreed that the Experts were not to engage in abstract discussions, but were to prepare the elements for the purpose of formulating their opinions as to the demarcation

on the ground. With this view, the Commissions of assistants were to commence their task, being provided with the instructions to be furnished to them by the Experts, for which purpose Señor Barros Arana received intimations from the Government."

Later on, amplifying the contents of this telegram, the Argentine Minister added in a note of February 27 :—

"The object of my action therefore ought to have been, and was intended to be, for the purpose of re-establishing agreement between the Experts, by adapting their procedure to the provisions of the respective Treaty, which procedure is therein precisely specified. According to these provisions the Experts were not to engage in abstract discussions as to the interpretation of the Treaty, but to place themselves in a position to fix on the ground the line of demarcation entrusted to them, as also to place themselves in a position to utilise, in the event of the contingency anticipated arising, the resources of friendly concurrence which might bring about a solution of the difficulties that presented themselves, or if this were impracticable, to give to the divergence of opinion such practical and concrete form as would enable it to be submitted to the decision of the umpire. The attitude taken up by the Experts had frustrated the anticipations of the Treaty. In order to overcome this, acting in accord with Señor Pico and following Your Excellency's suggestions, I had a conversation with the President of the Republic and his Ministers residing at Valparaiso, with whom I found no difficulty in adhering to my project. Consequently Señor Barros Arana was called upon by the Government and received an intimation that he should come to an agreement with his colleague, and for that purpose, certain bases were agreed upon as to the instructions which were to be at once sent to the Commissions of assistants, which instructions I undertook to transmit to Señor Pico."

The incidents were thus closed. The work could go on, especially as the Chilian Expert desisted from theoretical controversy and, thanks to the interposition of his Government, accepted the project of investigating the geographical features by drawing up the necessary plans for that purpose. But in spite of all this there was the latent fear that, for some reason or other, the continental divide, as the only and absolute rule to the total exclusion of the Cordillera de los Andes, which is the boundary agreed upon, might crop up again through the action of Señor Barros Arana.

Señor Pico, as an Expert, maintained the true doctrine: that of the traditional limit, in the ridge of the Cordillera de los Andes, in the main chain, which contains the greater mass of lofty peaks, the boundary such as it was described by Rosales, Ovalle, Molina, Espinosa and Banzá, Schmiedtmeyer, Miers, Gilliss, Darwin, Gay, Pissis, Domeyko, Barros Arana himself; there, in the line of "lofty summits where the snow never melts," and where the normal watershed of the Cordillera is found, which is the one agreed upon by the

negotiators of 1881, was to be sought the orographical boundary, the true natural barrier, in the high ridge, in the vertex of the two general slopes of the great "Sierra Nevada" of the Andes, leaving the east to the Argentine Republic, the west to Chile.

Thus, from the first moment that the contentions of the Chilian Expert, to which reference has already been made, were put forward, they were rejected by the Argentine Expert, not even being admitted for discussion, since they were entirely outside the terms of the Treaty of 1881, and the instructions which he had received from his Government for its execution.

4. DISAGREEMENT BETWEEN THE EXPERTS, SEÑORES VIRASORO AND BARROS ARANA.

Work had already begun on the demarcation, when Señor Pico suddenly died. At that time the surveyors of the Joint Sub-Commission of the north placed, with but the slightest previous examination, a divisional boundary-mark in the pass of San Francisco, which was considered to be a mistake by Señor Don Valentin Virasoro—who replaced Señor Pico as Argentine Expert—and therefore he did not sanction it, stating his reasons to the Chilian Expert as soon as he arrived at Santiago to continue the delimiting operations suspended by the death of Señor Pico.

At the first interview which he had with Señor Barros Arana, not only was it impossible to arrive at an agreement respecting the wrong location of the said boundary-mark, but the latter made a second attempt to depart from the Treaty of 1881 by preparing the instructions to be given to the assistants of the Joint Sub-Commissions in such a form that would imply the change of sovereignty of territories recognised as Argentine by that Treaty. Señor Virasoro, like Señor Pico, rejected these proposals altogether, and presented to Señor Barros Arana the following precise instructions he had received from his Government:—

"Señor Virasoro will not forget that the Commissions appointed for delimitation, as well as he himself, in fulfilling his duty as the Argentine Expert, are to abstain from entering upon abstract and theoretical questions, or upon interpretations of the Treaty of 1881, and far less are they to accept any theory for the interpretation of the said Treaty, or subordinate their proceedings to such theory; for their mission is purely technical, i.e. confined to marking out the dividing line between both countries upon the ground

itself, and with the powers bestowed upon them by Article I for arriving at an amicable decision when, owing to the existence of certain valleys, etc., the watershed may not be apparent."

In addition to this, the instructions contained conclusive prescriptions as to the true interpretation of the Treaty of 1881. In the second paragraph it was stated:—

"On proceeding to the boundary line from north to south, along the high crests of the Andes, he will take special care to determine previously the main chain of the Cordillera and, having decided upon this, to determine the starting point in a southern direction, bearing in mind the Resolution of the National Government dated September 20, 1892, which was communicated to him."

The third was more explicit still:—

"In order to proceed to the delimitation of the said line he will be guided by what is prescribed in Article I of the Treaty of 1881, which directs that the dividing line from north to south shall run along the most elevated crests of the Cordillera de los Andes that may divide the waters, and shall pass between the slopes which descend one side and the other, and, therefore, it is not admissible to depart from the high crests, for the division of the waters spoken of in Article I is that of the slopes which on those heights separate on either side, and not that of the rivers and streams which flow immediately from these; and so truly is this the case that on reference being made in the Treaty to the difficulties that might arise from the existence of certain valleys formed by the bifurcation of the Cordillera, and in which the watershed may not be apparent, even in this case it does not authorise the Experts to depart from the high summits, nor to seek the watershed of the rivers and streams (for no mention is made of these in the Treaties), but they are only empowered to settle these difficulties in a friendly way; and from the spirit and literal text of this Article it is evident that the delimitation that may be made according to what may be agreed upon, must be on those heights."

It was in view of such definite instructions that the Argentine Expert rejected the proposals of his colleague, who, as he did with Señor Pico, again pressed his ideas, and thus caused the relations between them to be strained.

The report of the new disagreements was officially made by the Expert Señor Virasoro in his communication of June 26, 1893, in the following words:—

"Some days after my arrival, on January 25 of the current year, I held my first conference with the Chilean Expert, in the International Boundary Office; and the following is a report of what took place in same, although it was more an exchange of general ideas than a conference of an official character, and I give an account of same because we tried to arrive at a practical formula for recommencing the work of demarcation which had been suspended when we tried to begin it last year

"In this conference, Señor Barros Arana, speaking of the interpretation of Article 1 of the Treaty, stated that the rule of demarcation must be the watershed, considering as such the separation of the Atlantic and the Pacific hydrographic basins; and he entered into many statements already set forth in his note of January 18 of last year.

"I replied that, without entering into a discussion on the merits of the Treaty, and holding the matters discussed in this conference as a confidential conversation for the purpose of exchanging ideas, I considered that the watershed should be sought for, but that it should be circumscribed by the Cordillera de los Andes in general, and by its most elevated crest line, i.e. its principal backbone, in particular.

"Señor Barros Arana said that we should discuss the instructions which we should have to give the assistant engineers for the demarcation, and for that reason we should require to determine clearly the rule they were to follow.

"To this I replied that without a complete knowledge of the ground no fixed rules for the demarcation could be given, because we did not know the real state of things in the Cordillera and consequently could not frame beforehand such rules.

"Señor Barros Arana appears, although not explicitly, to have agreed to this. We then spoke of what was understood by crests that may divide the waters, and I expressed my opinion on the subject; I added that, as generally happens in other Cordilleras, possibly that of the Andes might present its range of main crests crossed by a watercourse which might be fed by waters flowing down the two opposite slopes of the Cordillera, in which case we should have two facts before us, viz. division of the slopes in the chain of the Cordillera, referred to in the Treaty, and division of the waters in the origins of said watercourse, origins which may be situated not only outside of said chain but also outside of the Cordillera itself.

"Señor Barros Arana replied that in his opinion this case would not occur, and if it did the opportunity would arise for consulting our Governments regarding its solution, to which I manifested that the case was already foreseen in the Treaty, as it provided that the Experts must seek in the Cordillera, and within the limit of its main range, the separation of the slopes which descend one side and the other of said range. I added that slopes (*vertientes*) must not be confounded with watercourses, because the former constitute the descending sides of mountain chains and have their line of intersection on the main range. This crest may be continuous, without interruptions, and it may also be cut by watercourses (and this may be observed in many Cordilleras of the world, and especially in the Himalayas), thus presenting a breach, and still continuing beyond the interruption. The Treaty provides that on said main range we are to seek the intersection of the slopes, i.e. the line where the descending and opposing sides of the mountain come together, or in other words the anticlinal line, the line where the opposite slopes meet on the top of the mountain.

"To deviate from that chain in search of a watershed not mentioned in the Treaty, would evidently be departing from the Treaty, since the latter provides the separation of slopes, to be sought within a given and clearly expressed limit.

"Señor Barros Arana, explaining the manner in which he construes the Treaty, said that the rivers flowing into the Pacific must be considered as Chilean from their sources, and those disembodying into the Atlantic as Argentine, also from their sources.

"I replied that it was impossible to make affirmations in that sense, because a knowledge as to whether those rivers belonged in their entire length or only in part to either country could only be acquired from a study of their position with relation to the general slopes of the Cordillera.

"Señor Barros Arana insisted that it was necessary to issue fixed rules of proceeding to the assistants, in accordance with the interpretation of the Treaty; and that it was necessary to do so with the mixed Sub-Commission of assistants in the north. . . .

"On the following day, January 26, we again met in the same place, alone. Señor Barros Arana began by stating that he had retired chagrined from the previous meeting because he had gathered from my attitude the certainty that the divergences arisen with Señor Pico would be renewed, as he found that I had manifested opinions respecting the Treaty which were not those to be derived from its clear text. Further, that the latter does not authorise the drawing up of maps, and that he had opposed same when Señor Pico had proposed it, as could be seen by a written statement which he read, and which he said had been presented by him to Señor Pico when they discussed this same point.

"He added that the assistant engineers should bear fixed rules of proceeding, so as to operate on the ground and carry out the demarcation in accordance with facts and with the terms of the Treaty.

"He repeated that, in his opinion, the continental watershed must absolutely constitute the fixed and invariable rule of demarcation; that this was the clear meaning of the Treaty; that Chile, based on the Treaty, would never consent to the Argentine Republic possessing ports on the Pacific, as such a pretension was wholly inadmissible.

"Señor Barros Arana concluded by exhibiting to me a map of the southern part of the continent, in which the boundary was marked along parallel 52° up to the river Gallegos, without striking the inlet of Ultima Esperanza, and consequently without reaching the Peninsula of Sarmiento where the Cordillera de los Andes is really situated. He said that the line indicated is the one which Chile considers to be in accordance with the Treaty, and that nothing would make him abandon this conviction except the award of an arbitrator to whose judgment the interpretation of the Treaty would be submitted.

"As regards the drawing up of maps, I observed to Señor Barros Arana that, far from being contrary to the Treaty, they were indispensable for facilitating its faithful execution. I reminded him of his divergence with Señor Pico and the intervention of the Argentine Minister, Señor Uriburu, citing the note of the latter dated February 27, 1892, addressed to the Minister of Foreign Affairs, in which he relates the circumstances of his intervention and its solution. In said note he says that he had a conference with the Chilean President and his Ministers, 'with the object of re-establishing the agreement between the Argentine and Chilean Experts by the observance of the provisions of the Boundary Treaty, from which they appear to have departed. We agreed that the Experts were not to engage in abstract discussions, but were to prepare the elements for the purpose of formulating their opinions as to the demarcation on the ground.'

"According to the above, and as Señor Uriburu says in his note, the Experts were not to engage in abstract discussions as to the interpretation of the Treaty, but to place themselves in a position to fix on the ground the line of demarcation entrusted to them,

and also to have, in the case foreseen, recourse to friendly agreements for the solution of the difficulties which might arise. . . .

“With regard to the statement that according to the Treaty, the line of demarcation in the southern part of the continent should be fixed according to the map referred to, presented by Señor Barros Arana, I manifested that as I did not know the ground, I could affirm nothing on the matter; that on the west, the Cordillera de los Andes must be the termination of the boundary between the two countries as constituted by parallel 52° S. This boundary must strike the Cordillera, but must not pass its crest line of slopes; and if in that part the Cordillera were in a peninsula, it might happen that, abiding strictly by the terms of the Treaty, we should have to cross some arm of the sea before reaching the watershed of the Andes.

“Señor Barros Arana said that Chile would never accept this arrangement, and expressed his regret that we should not be able to arrive at an agreement, adding that he was most desirous that the demarcation should be effected according to the dictates of harmony and brotherhood which had guided the stipulation of the Treaty of 1881; and that this feeling was shared in Chile, was shown by the fact that he, having established and negotiated said stipulations on behalf of Chile, had been appointed as Expert.

“I replied that the Argentine Government was inspired by the same sentiments, and that the instructions I had received were in harmony with them. I added that as yet I saw no motive of disagreement; and that the proceeding proposed by me of obtaining trustworthy data as a basis of our decisions, showed that I desired to seek a sure solution of the question, and the greatest possible exactitude in the demarcation, in order to provide against an erroneous application of the Treaty, the faithful fulfilment of which is the chief desire of the Argentine Government.

“Señor Barros Arana insisted on our not drawing up preliminary maps, and on the necessity of our giving fixed rules to the assistants for limiting their work strictly to the line of separation of the origins of the waters which flow respectively to the Atlantic and to the Pacific, and manifested that he considered expedient that in another meeting we should draw up a Record setting forth the opinions of both Experts regarding the proceeding to be followed.

“We agreed on this, and I told Señor Barros Arana that as I had to go to the Cordillera to meet the Minister Señor Quirno Costa, who was on his way to Chile as Argentine Envoy Extraordinary, on my return I would present my statement.

“On January 27, I telegraphed to the Minister of Foreign Affairs an account of what had passed in the previous meetings, informing him that we were about to draw up the Record of the disagreement.

“On February 3, Señor Quirno Costa being then in Santiago, I held a fresh meeting with my colleague the Chilean Expert, and according to arrangement I presented the statement of what should be inserted on my part in the Record, a statement which had been previously approved by the Argentine Minister, and which I do not transcribe as it would only be a repetition of what had been discussed in the meetings, and had, on the other hand, remained without effect.

“Señor Barros Arana replied that in continuation of my statement he would insert his, and with this object he took away the Record, which was already drawn up and headed by my statement.

“Many days elapsed without his informing me of his decision on the matter, until, in the middle of February, the Argentine Minister intervened in a friendly and confidential manner in order to remove the difficulties and divergences which had arisen.”

When negotiating with Señor Pico, Señor Barros Arana had declared that the boundary was the central chain of the Andes, in which, according to his opinion, occurred the division of the waters; but then and afterwards, when negotiating with Señor Virasoro, he refused to arrange for a survey of the ground prior to making the actual demarcation—a survey which could in no wise favour his views respecting the dividing line. He considered such surveys unnecessary when dealing with a delimitation extending over 1500 miles, and in an enormous mass of mountains, a very small portion of which only, and that superficially, was known.

It would, in his opinion, suffice, in order to fulfil the provisions of the Treaty, that the assistant surveyors should seek the water-divide, and there erect the boundary marks without further investigation as to whether those points coincided with the provisions of the said Treaty; but, by proceeding in this manner, territories which belonged to the Argentine Republic according to the Treaty, would pass over to Chilean dominion, and it was therefore, not possible to consent to this course.

The difficulties and differences referred to by Señor Virasoro were increased very considerably. In 1892, a simple expedient was sufficient to settle the divergences between Señor Pico and Señor Barros Arana. In 1893, its inefficacy once demonstrated, it was clearly understood that another similar expedient did not suffice to put a stop to the conflicts between Señor Virasoro and Señor Barros Arana. For that reason, instead of dealing with the questions in a superficial manner, and instead of postponing to a more favourable occasion the definite solution of the same, it was thought advisable to face them immediately without vacillation, fearlessly and with firmness.

Though the theory of the continental divide had no foundation, neither in the antecedents, nor in the text, nor in the spirit of the Treaty of 1881; though that theory was not openly embraced by the Chilean Government; though it was only the Chilean Expert who expounded it, at the same time forgetting his own previous opinions; the Argentine Government desired, once for all, to avoid ambiguous interpretations and to determine the true, real and sole meaning of the Covenant. This was the origin of the Protocol of May 1, 1893.

Moreover, at the time in which this agreement was transacted, the

continental divide was not the only obstacle that hindered the execution of the Treaty. There were five points in which the opinions of the Experts differed, viz.:—

1. Whether the divide of Tierra del Fuego was to be carried out after previously studying the situation of Cape Espíritu Santo—which was the starting-point—or whether, in order to determine it, they were only to follow the indications of geographical maps.

2. Whether the Sub-Commissions were to decide in a definite manner on the placing of the landmarks, or whether their decision was to be merely provisional, they being likewise entrusted with the drawing up of maps, in order that the Experts themselves might with due knowledge make the final determination.

3. Whether the San Francisco landmark was placed in the Cordillera de los Andes as provided by the agreements, or whether it was necessary to remove it after a fresh survey.

4. Whether it was possible, according to the Convention of 1881, that the Argentine Republic should have territory on the shores of the Pacific, or whether Chile was to have exclusive sovereignty over the coast regions of said ocean in the southern part of America.

5. Whether Article 1 of the Treaty of 1881 provided that the boundary line was to follow the continental divide, or whether it established that it should run along the most elevated crests of the main range of the Cordillera that may divide the waters.

The first question arose in April 1892, when the Sub-Commissions met in Tierra del Fuego in order to begin the delimitation. There, in the first meeting, Señor Merino Jarpa, chief of the Chilean Sub-Commission, stated that as Cape Espíritu Santo was the starting-point, the latter should be marked in the position indicated in the geographical maps. Señor Virasoro, chief of the Argentine Sub-Commission, maintained that they should begin by finding the situation of the Cape on the ground, by means of the necessary surveys, without following as decisive the indications of the maps. Thus arose the disagreement set forth in the Record of April 16, 1892.

In a Decree, dated September 20 of the same year, the Argentine Government approved the opinion of Señor Virasoro, who, at that time, had already been appointed Expert. This conflict stopped the work in Tierra del Fuego, as it affected the groundwork of the demarcation.

The second question arose in February 1892. Señor Pico, as has been seen,

wishing to facilitate the work, and with the object that the Experts might have all the antecedents they required, reserving to them exclusively, as a function to which they were entitled, the final decision in the placing of the landmarks, proposed to his colleague that the assistant Sub-Commissions should draw up the necessary maps. Señor Barros Arana objected to this, and though the intervention of the Argentine Minister settled the difference, it was again renewed on the occasion of Señor Virasoro's arrival in Chile. This difficulty was of some importance, and prudence dictated that it should be overcome before proceeding with a work, on the extent of which those entrusted with its execution were unable to agree.

The third question was the unfortunate outcome of a mistake due to the precipitation of the surveyors. The Argentine and Chilean Sub-Commissions; the respective chiefs of which were Señores Diaz and Bertrand, placed a provisional landmark in the most central part of the San Francisco Gap. Nevertheless, although the Sub-Commissions were agreed respecting the place, they discussed the reasons and circumstances which had led them to choose it, and in the impossibility of arriving at an understanding, they drew up two separate Records. In consequence of this divergence the matter was submitted to the Argentine Government, and the latter, after hearing the reports of Señores Diaz and Virasoro, decided on September 20, 1892, that the Expert should demand from his colleague that the technical operations in the San Francisco Pass or road which crosses the Cordillera from the Argentine to the Chilean region should be revised in order to locate the starting point within said road where the aforementioned operations should indicate, and that the work performed in the San Francisco Gap should be set aside if it were found that the said gap was not situated in the central massif.

The Chilean Expert resisted this proceeding. He maintained that the landmark was already fixed, and had been located in strict accordance with their instructions, for which reason the operation should be considered as definite. Public opinion in both countries became agitated owing to the writings of the press, and the difficulty assumed a serious aspect.

The fourth question stirred the Chilean nation deeply. The negotiator of the Treaty of 1881, when defending its clauses before the Argentine Congress, stated, as his belief, that the Republic would be entitled to territory washed by the Pacific, and quoted in support of his opinion that of Señor Moreno, who had expressed it in the following terms :—

“The Treaty which specifies the 52° for the southern boundary of Argentine territory, and the Cordillera de los Andes for the western, allows of our having ports in the waters of the Pacific.”

In this hypothesis, the Convention was approved, but some time after this fact there arose in Chile a sound of alarm and protest which attracted attention, and found vent in official communications. The Expert, Señor Barros Arana, on January 18, 1892, said :—

“I have no hesitation in declaring that this pretended demarcation is a geographical chimera, upheld, it is true, in writings and maps of recent date, to which I cannot concede the slightest authority nor any serious purpose. Neither can I concede it to another geographical chimera upheld in the same writings and in the same maps. I refer to the pretended Argentine ports on the Pacific, which, in opposition to the spirit and letter of the Treaty, would interrupt and break the continuity of Chilean territory. On this subject, maps have been made and re-made, their authors taking much useless trouble over a task which, like the geographical question they wish to raise, will never lead to any practical result.”

The Argentine Expert, Señor Pico, entertained a contrary opinion. In the Memorandum of February 26, presented to his Government, he replied to his colleague's statements as follows :—

“In my opinion, there is no motive for that display of rhetoric launched against the *pretended Argentine ports on the Pacific*. If at any time, on applying the clauses of the Treaty to the ground, it should result that the Argentine Republic had a right to ports on the Pacific, we shall have them.”

The divergence on this subject had become still wider when the negotiations began for the Protocol of 1893.

The fifth question was that which created the greatest stir and the widest echo. It referred to the very interpretation of the Treaty of 1881, in its substantial part, in its Article 1, in the clause destined to lay down the rule for the tracing of the frontier line. It has already been seen how it originated, and what was the importance attributed to it by the Argentine Government.

5. VARIOUS QUESTIONS SETTLED BY THE PROTOCOL OF 1893.

The five questions enunciated, some of them fundamental, and others of an incidental character, hampered the work of demarcation, and created a state of uncertainty in both Republics. Under these difficult circumstances, the Governments, guided by a common desire to secure peace and brotherhood, calmly studied each of the questions which had arisen, and arranged them all by means of mutual concessions.

In the city of Santiago, on May 1, 1893, Don Norberto Quirno Costa, Envoy Extraordinary and Minister Plenipotentiary of the Argentine Republic, and Don Isidoro Errázuriz, in his character of Plenipotentiary *ad hoc*, having met, they adjusted the clauses of the Agreement—as can be seen in its text—

“after having considered the present state of the work of the Experts entrusted with the demarcation of the boundary between the Argentine Republic and Chile, in accordance with the Boundary Treaty of 1881, and animated by the desire of removing the difficulties which have embarrassed or might embarrass them in the fulfilment of their Commission, and of establishing between both States a complete and cordial understanding in harmony with the antecedents of brotherhood and glory common to both, and with the ardent wishes of public opinion on either side of the Andes.”

It would be childish to pretend that such elevated concrete phrases are mere literary figures. When the Representatives of two contending nations solemnly declare in a public document that they have considered “the present state” of the controversy; when they declare that they have endeavoured “to remove difficulties”; only a spirit influenced by doctrinal prejudices can maintain that the “present state” of the controversy had not been taken into account, and that nobody had endeavoured to “remove the difficulties.”

As mere conjecture, the possibility of an omission through forgetfulness might be admitted, but such forgetfulness is unlikely in diplomatic negotiations when treating questions of vital importance, questions which have been the principal cause of the Covenants, and which have given rise to the conferences.

Señores Quirno Costa and Errázuriz might have forgotten insignificant details of the difficulties encountered by the Experts, but it is not conceivable that they should overlook those which formed an unsurmountable hindrance to their great desire for peace and brotherhood.

If they had been silent on the subject of any one of the five controversies

which arose during the course of the work, the phrases which form the beginning of the Treaty in no way could be explained, because those controversies were well known, and had been freely discussed in public, mainly the first and the last question, which attracted special attention. In order to demarcate the frontier line in Tierra del Fuego, which is a geographical co-ordinate—the straight line which, starting from Cape Espíritu Santo, extends due south—it was unavoidably necessary to agree upon the exact starting point; in order to demarcate the Cordillera from the extreme north down to parallel of latitude 52° S., it was likewise unavoidably necessary to define the correct interpretation of the Treaty of 1881. If either of these points had been passed over in silence, the hindrance which existed for tracing the boundary, both in Tierra del Fuego and in the Cordillera de los Andes, would have still remained.

Common sense rejects the idea of such omissions. On the contrary, the most elementary rules of logic and the dictates of reason impose the following conclusion, which must be accepted, viz. that with the Treaty of 1893 the preceding divergences came to an end, since the Representatives of both countries met in order to settle them, and immediately afterwards stated that they had settled them all.

The exegesis of the Treaty of 1893 permits us to add further considerations which corroborate those which precede. Its letter, clear and conclusive, demonstrates to an impartial examiner, that all the questions which had divided the opinions of the Experts had been arranged.

The first question was settled by Article 4, which provides as follows:—

“The demarcation of Tierra del Fuego shall commence simultaneously with that of the Cordillera, and shall start from the point called Cape Espíritu Santo. At that point, visible from the sea, there are three heights of hills of medium elevation, of which the central or intermediary one, which is the highest, shall be taken as point of departure, and on its summit shall be placed the first landmark of the line of demarcation, which shall continue towards the south in the direction of the meridian.”

Consequently, it was impossible, later on, to go back on this point.

The second question, relating to the faculties of the assistants and the drawing up of maps, was resolved by Articles 3, 5, 6, 7 and 9, which establish rules of proceeding for the Commissions, and provide that they should collect all the necessary data in order to trace on maps of common accord, and with the greatest possible exactness, the boundary line which they should demarcate on the ground.

The third question, which referred to the San Francisco landmark, was arranged in the following form, set forth in Article 8 :—

“The Argentine Expert having manifested that in order to sign, with full knowledge of the matter, the Record of April 15, 1892, by which a mixed Chilean-Argentine Commission fixed on the ground the point of departure of the demarcation of boundaries in the Cordillera de los Andes, he considered it indispensable to make a fresh reconnaissance of the locality in order to verify or rectify said operation, adding that this reconnaissance would not delay the progress of the work, which could be simultaneously continued by another Sub-Commission, and the Chilean Expert, having on his part manifested that, although he believed that the operation had been carried out in strict conformity with the Treaty, he had no objection to acquiesce in the wishes of his colleague, as a proof of the cordiality with which this work was being performed, the undersigned have agreed that a revision be made of what had been done, and that in the event of errors being found, the landmark shall be transferred to the point in which it should have been fixed according to the terms of the Boundary Treaty.”

The fourth question, which so deeply affected the press and opinion in Chile—that which referred to the possibility of the existence of Argentine access to Pacific waters—was arranged by means of the compromise indicated in the second Article, the text of which, in the first part at least, seems to have been somewhat neglected by Chilean writers, notwithstanding its undoubted capital importance for the right interpretation of the Treaty. As regards the Pacific territories, it would perhaps suffice to quote the final part, but it is necessary to read the whole Article if one wishes to find the scope and signification of the Convention of 1893 in all its projections. It may be said in synthesis, that as a result of the compromise mentioned in the Article, the Argentine Republic waived its eventual rights to the access to the Pacific, provided that the idea was abandoned of altering the boundary agreed upon, by removing it from the elevated crests of the Cordillera, and placing it along the sources of the rivers, subject to manifold changes :—

“If in the peninsular part of the south”—says the latter part of the Article—“on nearing parallel 52° S. the Cordillera should be found penetrating into the channels of the Pacific, there existing, the Experts shall undertake the study of the ground in order to fix a boundary line leaving to Chile the coasts of said channels; in consideration of which study, both Governments shall determine said line amicably.”

The fifth question was also settled by the Convention of 1893. Owing to its paramount importance, it will be dealt with in the next chapter. Is it, forsooth, possible that the fifth and last question, the most salient, and that which most

hindered the execution of the work could have been omitted? What would have been the object of such an omission?

The statesmen who with their signatures authorised the clauses of the Agreement, the Governments which assented to them, and the Congresses which sanctioned them, were cognisant of the controversy about the division of the waters, in its innermost details, and could not have forgotten it during the protracted proceedings connected with the Protocol.

It would be denying the truth of the evidence itself to say that, notwithstanding the explicit phrases that precede the Protocol of 1893, its authors set aside the vital question which gave rise to the diplomatic proceedings in order to arrange only the others of minor importance, which, however worthy of attention, are insignificant when compared with those pertaining to the continental *divortium fluminis*.

The fifth question was thus rightly solved by adhering to the text of the Treaty of 1881, but at the same time clearing away all the doubts with which the Chilian Expert sought to envelope it by his note of January 18, 1892.

CHAPTER X.

- Summary*—1. ERRONEOUS INTERPRETATION OF THE PROTOCOL OF 1893.
 2. THE OPINION OF SOME NEWSPAPERS.
 3. THE SPIRIT OF THE BOUNDARY TREATY DECLARED BY THE PROTOCOL.
 4. PARTS OF RIVERS.
 5. ARTICLE 6 OF THE PROTOCOL.
 6. NEGOTIATIONS OF THE PROTOCOL OF 1893.

1. ERRONEOUS INTERPRETATION OF THE PROTOCOL OF 1893.

IN the Statement read before this Tribunal, the Chilean Representative acknowledged that the disagreement between the Experts regarding the interpretation of Article 1 of the Treaty of 1881, "was, in part, the origin of the negotiation of 1893 which led to the drawing up of the Protocol of May 1 of that year"; but without studying the details of the negotiations, the importance of which will soon appear manifest, he considers that the Protocol was restricted, in regard to this point, to sanctioning the rule of the continental water-divide.

In order to draw this conclusion he adduces as proofs :—

1. That Article 1 provides that the precept contained in the Treaty of 1881 shall be taken as an invariable rule by the Experts and by the Sub-Commissions of assistants. In the part quoted the wording is :—

"Whereas Article 1 of the Treaty of July 23, 1881, provides that 'the boundary between Chile and the Argentine Republic from north to south as far as parallel of lat. 52° S. is the Cordillera de los Andes,' and that 'the frontier line shall run along the most elevated crests of said Cordillera that may divide the waters, and shall pass between the slopes which descend one side and the other,' the Experts and the Sub-Commissions shall observe this principle as an invariable rule of their proceedings."

2. That "the water-divide is the geographical condition of the demarcation," as stipulated by Article 3; and

3. That by Article 7, "in intrusting the Experts or demarcating engineers with the formation of a map upon which they could trace the boundary line fixed by them on the land, they are recommended to mark upon it the origin of the

streams that flow down to one side and the other of the boundary line, the high peaks that rise there, as well as other geographical features, which, 'although not precisely necessary for the demarcation of the boundary, may be easily located on the ground as references for its ubication.' These recommendations," adds the Representative of Chile, "clearly show that the negotiators understood that in the demarcation they were not to cut streams nor make the boundary line pass over summits or peaks which do not divide the waters."

These arguments are in some parts unfounded, and in others they justify an opposite conclusion.

The clause which ordains that the Experts and Sub-Commissions shall keep to the text of Article 1 of the Treaty of 1881 as the invariable rule in their procedure, neither modifies nor amplifies its wording, but simply reproduces its context. The interpretation of the clause, therefore, depends on the interpretation given to the precept which it transcribes. If the Chilian Representative understands that when it says, "that the boundary is the Cordillera de los Andes," we are to conclude that the Cordillera is accessory and secondary, and that the continental divide is the principal; if he understands that when it is ordained that the most elevated crests shall be followed, the precept is complied with by following crests of any height; the Argentine Republic might, with still greater reason, say that as the Protocol of 1893 insists on fixing the boundary in the Cordillera de los Andes, the Experts shall observe this principle as an invariable rule of their proceedings; and as the Protocol provides that the line must run along "the most elevated crests that may divide the waters," the Experts, in like manner, shall observe this principle as an invariable rule of their proceedings. In this way, at any rate, the Article is maintained in all its integrity without any need for altering it in order to make its disjointed wording harmonize with theories which have no basis either in its antecedents or in its spirit.

Moreover, the Argentine interpretation is supported by the facts that gave rise to the clauses in the Protocol, which doubtless is intended for some practical purpose.

It is impossible to suppose that the negotiators in 1893 would repeat the transcribed part of the Treaty of 1881 without any purpose. Reason and common sense would suggest that previous to the Protocol some difficulty existed in the way of accepting the validity of that rule in the form in which it is expressed, and that for the purpose of preventing any similar further

obstacle arising, it was thought prudent to again restore its validity. Such in fact is the case.

From the references above quoted, it is clear that the Argentine Expert, Señor Pico, suggested to his colleague, Señor Barros Arana, that the text of Article 1 of the Covenant of 1881 should be furnished by way of instructions to the Auxiliary Sub-Commissions. It is also clear that the Chilean Expert began by pointing out the necessity for interpreting the text, and that lastly he did not think it appropriate to transcribe the Article without some comment, which, finally, would tend to alter it so as to make it accord with the views as to the continental divide.

No Argentine Expert ever objected to apply Article 1 of the Treaty of 1881; no Argentine Expert ever feared that its interpretation would be doubtful, or would place obstacles in the way. All thought it explicit, inasmuch as it provided that the boundary line should be drawn over the most elevated crests of the Andes. It was the Chilean Expert who, probably not finding Article 1 quite in accordance with the new doctrine of the continental divide, sought for the addition of phrases and views, and did so with such persistence, that he thereby gave occasion to the first divergences between the Experts.

It is not surprising then, that the negotiators of 1893 should begin by saying :—

“Whereas Article 1 of the Treaty of July 23, 1881, provides that ‘the boundary between Chile and the Argentine Republic from north to south as far as parallel of lat. 52° S. is the Cordillera de los Andes,’ and that ‘the frontier line shall run along the most elevated crests of said Cordillera that may divide the waters, and shall pass between the slopes which descend one side and the other,’ the Experts and the Sub-Commissions shall observe this principle as an invariable rule of their proceedings.”

This first part of Article 1 of the Protocol of 1893 perhaps completes and makes clear the first part of Article 1 of the Treaty of 1881, for by placing between inverted commas the text of the said Article, and adding the words “and that,” thus dividing the sentence, it is clearly determined that the principle to be followed by Experts and the Sub-Commission in the demarcation is that which declares the Cordillera de los Andes to be the boundary between the two nations.

Therefore, the clause proves that the theory of the continental divide had made no headway. Taken with its antecedents, it gave support to the views of Señor Pico, which, as we have seen, were in agreement with the Treaty of 1881.

It is to the second argument that the Chilian Representative attributes more consistency. The water-divide, it is said, is the geographical condition of the demarcation, according to Article 3 of the Protocol.

Although it suffices to read the precept to be convinced that it in no way contradicts the categorical clauses of the Treaty, which, as will be seen, repudiate the doctrine unfolded by the Chilian Expert in his note of January 18, 1892, nevertheless it is well to say a few words respecting the same. The provision runs as follows :—

“ In the case foreseen in the second part of the first Article of the Treaty of 1881, where difficulties might arise ‘from the existence of certain valleys formed by the bifurcation of the Cordillera, and in which the watershed may not be apparent,’ the Experts shall endeavour to settle them amicably, seeing that a search be made on the ground for this geographical condition of the demarcation. For that purpose, of joint accord, they shall draw up with the assistant engineers a map which may help them to solve the difficulties.”

To begin with, it may be affirmed that the clause does not lay down a general rule applicable to the entire extent of the frontier, but that it refers specially to an isolated and particular case, viz. that of the existence of valleys formed by the *bifurcation of the Cordillera*.

Besides, the Article does not provide that the division of waters is to be *the only* geographical condition of the demarcation ; it merely says that it is *a* geographical condition ; that it is one among the many geographical conditions.

Consequently, the argument based on Article 3 of the Treaty not only does not conduce to sustain the fitness of the interoceanic divide, but, on the contrary, is absolutely opposed to it. As a matter of fact, the Article, when referring to the bifurcation of the Cordillera, once more confirms the idea of the orographic boundary formed by the most elevated crests, or the main range.

In regard to this argument, we may again note the erroneous tendency shown in the Statement read by the Chilian Representative to convert the watersheds into continental divides. It is therein explicitly recognised, in accordance with the already quoted opinion of Señor Bertrand, that there are an indefinite number of *divortia aquarum* ; but if in a Treaty or in a book, the word “ waters ” is met with, the Chilian Statement takes for granted at once, without further investigation, that it refers to the separation of the hydrographic basins of the rivers that are tributaries of the Atlantic and Pacific Oceans, although there may be no reference to basins, rivers or oceans. The watershed referred to in the Protocol of 1893 is that of the Cordillera, it is that of its most elevated crests, as

the boundary cannot be removed from the most elevated crests, still less from the Cordillera itself. What reason, therefore, is there for saying that Article 3 has laid down the rule for the continental divide? Would it not be more logical to say that if care has been taken to omit all reference to continent, to oceans or to hydrographic basins, it is because after the discussions that had taken place, it was desirable to abandon once for all the theory which is based on such features?

On the other hand, even if all this should not be regarded as accurate, to conclude that the Governments intended to fix the rule of demarcation of a line reaching over an extent of 29°, when dealing with a mere incidental matter, such as the bifurcation of the Cordillera, is one of those deductions which are self-destructive. Article 3 does not say that the continental divide is the principle to be followed in any case, though if it did, it would be obligatory to follow it only in the particular case for which it was stipulated. But by no manner of means can a sentence picked out from one clause and transferred to another, nor by any means, on such an assumption, can it be said that "as the watershed was agreed to for the bifurcation of the Cordillera, that same watershed should be followed even where the Cordillera does not bifurcate, although the Treaty does not stipulate it." Had that been the idea, had it been intended to give to the watershed the importance which it is claimed was intended, it is certainly evident that this would have been set forth in that part of the Convention which is intended to summarise the characteristics and the general rule governing the whole course of the line, instead of stating it when speaking of a special detail, which is, moreover, subject to special rules. It is no way of interpreting a Treaty to take an incidental phrase from it, employed with a circumscribed object, and to endeavour to discover therein the spirit of the entire negotiation.

Article 3 of the Protocol of 1893 has a clear object, a definite scope, beyond which it would be hazardous to stretch it, without risk of upsetting the general view which regulated the adjustment. The statement of the antecedents explains it in detail.

The Treaty of 1881 provided that :—

"The difficulties that might arise from the existence of certain valleys formed by the bifurcation of the Cordillera, and in which the watershed may not be apparent, shall be amicably settled by two Experts, one to be named by each party."

In view of this clause the Argentine Experts held that there was no other

way of fulfilling the trust committed to them, if the emergency contemplated in theory should present itself in practice, but to study the ground and prepare detailed plans. The Chilian Expert, who always displayed a marked tendency to abstract discussions, opposed this geographical survey, which nevertheless could not be detrimental to those who were endeavouring to find out and expose the truth.

The negotiators of the Protocol of 1893, having in mind the clauses and the disagreement, prescribed the actual survey of the features, being convinced that in this way the amicable solution that was recommended would be feasible. This, and this alone, was the object of Article 3. In the whole course of the negotiations not the slightest trace of any other motive can be found. Lastly, its wording reveals that such was the intention. It not only prescribes the investigations of the ground, but it adds :—

“For that purpose, of joint accord, they shall draw up with the assistant engineers a map which may help them to solve the difficulty.”

Therefore, whatever be the standpoint from which we examine Article 3, the conclusion is always identical. It lacks anything bearing on determining the general rule for the boundary, and in the actual case on which it legislates it repudiates the interoceanic water-divide and makes it unmistakable that the boundary should pass over the Cordillera even though it should bifurcate; that it should pass over its most elevated crests, and that when the bifurcation exists the Experts, by studying the geographical conditions, shall proceed to settle the differences that may arise.

If, as the Chilian Representative admits, the negotiators of the Protocol of 1893 dealt with the different meaning attributed by the Experts to Article 1 of the Treaty of 1881, and if they were desirous of putting an end to it, we must of necessity agree that the third precept of the new agreement did not tend to that result.

The last consideration adduced to maintain that the Protocol of 1893 sanctioned the continental divide is, if possible, more unfounded than the previous ones.

It is said that the recommendation contained in Article 7, that the Experts should show on the maps the sources of the streams, and the high peaks that rise on both sides of the line—features which are not really necessary for the demarcation—proves that the negotiators intended that streams were not to be

ent, and that the boundary was not to be marked over peaks which did not divide waters.

The conclusion at which the Chilean Representative arrives, has no connection whatever with the premises from which he draws it. The argument is as inconsistent as it would be if it was said :—As Article 5 prescribes that “the Commissions of assistant engineers shall be ready to commence the work on October 15 next,” we must conclude that the water-divide was sanctioned. The fact that the sources of the streams and the high peaks shall be noted on the maps, has no more to do with the doctrine of the continental divide than commencing the work in October has.

But Article 7 is important from another point of view, which the Chilean Representative has omitted, thus leaving aside a categorical prescription according to which the course of rivers is unnecessary for the demarcation of the boundary.

It will be remembered that previous to the Protocol of 1893 the Chilean Expert unfolded his thesis respecting the interoceanic divide, while some writers said that the line should run over the highest peaks, even if these were detached from the main chain. The new Treaty rejected both interpretations and adopted that of the most elevated crests, which had been accepted ever since the Colonial epoch, and enforced again in 1881 in explicit terms whose meaning defied contradiction. True, the explanation was not expressly given in Article 7, but in other more detailed Articles, yet Article 7 contains an application of the rule, a ratification given in such terms that they alone suffice to carry conviction as to its spirit.

The text of the Article, in its pertaining part, says :—

“The Experts shall direct the Commissions of assistant engineers to collect all the necessary data to design on paper, of joint accord, and with all possible accuracy, the boundary line as they may demark it on the ground. To that effect they shall indicate the changes of altitude and azimuth which the boundary line may suffer in its course, the beginning of the streams or quebradas that descend one side and the other, writing down the names of same whenever it is possible to know them, and shall distinctly fix the pointson which the boundary landmarks are to be placed. These maps may contain other geographical accidents, which *without being actually necessary in the demarcation of boundaries, such as the visible course of rivers when descending into the neighbouring valleys* and the high peaks that rise on one side and the other of the boundary line, are easily indicated in the places as signs of location.”

The demarcators are to indicate in their maps *the beginning* of the streams or *quebradas* which descend one side and the other of the line. They are not

obliged to do so with respect to the streams in their entire length, but only as regards *their origins*, because the course the streams may take when descending the mountain in no way affects the tracing of the frontier line. If a stream flows towards the east, and falling precipitously into the valley, encounters on its way an eminence or obstacle which causes it to change its course, and thus, turning and twisting, finds a quebrada or gap, and changing its direction, ends by flowing westward into some arm of the Pacific; does this accident of its course destroy the primary fact that on leaving its source it flowed eastward? Evidently not. The Treaty is explicit: the Sub-Commissions of assistants must take into account the origin of that stream.

And neither must they place every stream on their maps. The Treaty refers exclusively to those "*which descend one side and the other*" of the line. If, therefore, a stream rises outside of the main range of the Andes, if it rises on chains or branches of the range, on ridges or spurs, if it rises in the valleys or in the plains, such a stream can be omitted, no matter how much it may cut the Andean ridge, because it does not fulfil the required conditions.

The Treaty provides that the assistant engineers, when following the line of the main chain, must determine the sources of the streams situated on either side of its edge. Their work may be of considerable extent, but it must always be confined within the main chain of the Andes. The Commissions have not been entrusted with the task—which would be a consequence of the continental water-divide—of surveying the coast of the Pacific in search of the rivers which disembogue into it, and then of ascending those rivers as far as their sources wherever the latter may be situated.

Moreover, Article 7 does not lay down definite rules as to the exact amount of geographical information which is to be shown on the maps. If for the exactness of these maps it should be necessary to know some other features besides those determined by said Article, nothing prevents that they be also depicted. When it is declared that the survey of the course of the rivers in flowing down to the neighbouring valleys is not necessary, it is merely because there is an evident wish to avoid work not indispensable in the determination of the upper crest of the dividing mountain.

In order to carry the line over peaks detached from the central chain, the high peaks would unavoidably have to be marked on the maps; in order to trace it along the continental divide, it would be above all indispensable to take the course of the rivers into account. Both of these accidents are overlooked in

the Treaty with regard to the boundary itself, although they may be traced on paper as auxiliary elements, useful for locating the regions through which the line runs. For that reason, the Article just quoted determines that the maps may contain other geographical accidents which, *without being actually necessary in the demarcation of the boundary, such as the visible course of rivers* when they descend into the neighbouring valleys, and the high peaks which rise on either side of the frontier line, are easy to mark in the places as indications of location.

By the hydrographic rule laid down by the Chilian Representative, all that is to be done is to seek the sources of the rivers, to follow their course and, according to whether they flow into the Pacific or into the Atlantic, so the territory watered by them shall belong to Chile or to Argentina.

By the orographic rule, of which Article 7 is a practical instance, it is not necessary to know the courses of the rivers ; it is needless to know them even in the adjoining valleys to which they descend from the crest down the slope, and, therefore, such requirement is still less needful in the varied fluctuations of these rivers along their courses until they empty themselves into the sea.

According to the hydrographic rule, the river's sources must be sought wherever they are situated.

By the orographic rule, of which Article 7 is a practical instance, the sources of streams are to be shown on the maps only when the streams come from the crests.

By the hydrographic rule, height is an element of secondary importance, always subordinate to the separation of the basins.

By the orographic rule, of which Article 7 is a practical instance, the Experts shall indicate the changes of altitude and azimuth which the boundary line may suffer in its course. If that line does not run along the most elevated crests of the Cordillera, to what altitude and to what azimuth did the Protocol refer? Will it perchance be pretended that it referred to those of the Patagonian plain where the sources of some rivers are found?

It is thus demonstrated that nothing is more opposed to the continental divide than Article 7 of the Treaty of 1893. It can only have been suggested in the Chilian Statement by forgetting that in speaking of the geographical features which are not actually necessary in the demarcation, the first which it enunciates in those conditions is precisely the visible course of rivers when descending from the most elevated crests into the neighbouring valleys.

2. THE OPINION OF SOME NEWSPAPERS.

If there is anything absolutely unquestionable in the boundary controversy, it is that the Protocol of 1893 was negotiated with the prime object of putting an end in the future to the erroneous interpretation which Señor Barros Arana gave to the Treaty of 1881, in that portion of it which points out the principle of demarcation. All the details of the negotiation prove this, and the text itself is as explicit as could be desired.

Some Chilian writers, dealing with the irresistible force of the Protocol, have recently insisted on concentrating all their attacks on it with the view of raising doubts as to its efficacy. In this effort they have published a multitude of articles and pamphlets distinguished by one common feature,—the total disregard of the proceedings which were antecedent to it, and of the clear and precise clauses which put an end to the controversy. Moreover, it is frequently to be observed that by extracting from the Protocol isolated phrases, and by distorting their true meaning, they assume that they have succeeded in nullifying the efficacy of the Treaty, which some of them do not hesitate to qualify as “*the less sincere, and, therefore, the less useful.*”*

In their anxiety, they have gone so far as to search the daily papers which at the time were opposing the Argentine Government, feeling sure of finding therein attacks on the negotiators and consequently on the Protocol itself, and afterwards they have pointed to those paragraphs as undeniable proofs, without remembering that at the same time the newspapers which supported the policy of the Government expressed themselves in diametrically opposite terms.

This proceeding simply reveals the lack of solid arguments, since it must not be imagined that the opinions of the press, oftentimes inspired in its noble mission by passing events, would always reflect the motives that Governments, in their doings, have in view.

The Chilian Representative, however, has collected these arguments, and has quoted before this Tribunal certain words that have appeared in *La Prensa* and in *El Diario* of Buenos Aires. It would be easy to countervail the paragraphs quoted with others contained in the opposition newspapers in Chile, the language of which at times has been so exaggerated that some of them have

* Dr. Hans Steffen in *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, vol. 32, 1897, n. 1.

gone so far as to accuse their own Ministers of treasonable designs, when drawing up the Conventions with the Argentine Government. But it would be useless. It is not in the opposition press that arguments must be sought for the solution of the dispute.

And it is to be observed, moreover, that the passages taken from *El Diario* and from *La Prensa* confine themselves to affirming that the Protocol of 1893 did not modify the Treaty of 1881. The former states that, "The Protocol preserves and confirms the full observance of the rules established by the Treaty of 1881 for the fixation of the boundary;" and the latter says, "It is simply an amplification of the text, a paraphrase of the Treaty of 1881, that leaves unaltered in its essential part the basis of that Treaty."

But it must be remarked that both newspapers have always maintained that the Treaty of 1881 being sufficiently categorical in its wording, required no explanation in order to render the doctrine of the continental divide incompatible with it.

On the other hand, the Argentine Republic has not maintained that the Protocol of 1893 modified or annulled the principle laid down in the Treaty of 1881, according to which the boundary line runs along the most elevated crests of the Cordillera; she has upheld, and upholds, on the strength of the Protocol itself, and of all the documents connected with it, that such Protocol has ratified the view which, without any break, has been developed since the early days of the Spanish conquest and throughout Colonial and independent history. On account of the persistent misinterpretations of the Chilean Expert, it was thought advisable that the line of the most elevated crests should be reasserted, and, although this was not strictly indispensable for the correct interpretation of the Treaties in force, it cannot be denied that it was desirable, in order to do away with ulterior discussions.

3. THE SPIRIT OF THE BOUNDARY TREATY DECLARED BY THE PROTOCOL.

For the correct construction of the Protocol of 1893, it is necessary to carefully study Article 2, which is mainly the one in which the view manifested by the negotiators in the preamble is rendered practicable, namely, that "of removing the difficulties which have embarrassed, or might embarrass, the Experts in the fulfilment of their commission." The main difficulty rested on the interpretation

of the Treaty. Then the Governments desired to determine in an authentic manner the correct interpretation, and to solemnly disavow the views enunciated by the Chilean Expert. It was to this end that Article 2 tended. In its first part it says :—

“The undersigned declare that, in the opinion of their respective Governments, and according to the spirit of the Boundary Treaty, the Argentine Republic retains its dominion and sovereignty over all the territory that extends from the east of the principal chain of the Andes to the coast of the Atlantic, just as the Republic of Chile over the western territory, to the coasts of the Pacific; it being understood that by the provisions of said Treaty, the sovereignty of each State over the respective coast line is absolute, in such a manner that Chile cannot lay claim to any point toward the Atlantic, just as the Argentine Republic can lay no claim to any toward the Pacific.”

Whatever efforts may be made to explain this Article in a sense contrary to its wording, it is impossible from a legal point of view to recognise the dominion of Chile over any territorial fraction lying to the east of the main chain of the Andes.

In the part referred to in this clause there is no fresh stipulation, it contains a mere explanatory declaration of a previous stipulation. It is limited to asserting with the concurrence of the two contracting parties, which is the spirit of the Treaty of 1881, and it recognises that each of the nations retains, that is to say, continues to possess, the territories on the east or west of the Andes divided by its main chain. This Article contains the solemn statements which elucidate the spirit of the Treaty of 1881, and show the Experts how far they may go in their resolutions.

To do away with unnecessary discussion which might involve fresh conflicts respecting the meaning of “the most elevated crests of the Cordillera de los Andes which may divide the waters,” this is defined in a conclusive manner, the line being individualised which is to separate the two countries on the principal chain of the Andes, at the intersection of the eastern and western slopes of the Cordillera, whether the line cuts rivers or not.

The waters are not referred to in any sense, either for the purpose of alluding to those which separate on the most elevated crests to descend down the slopes, or to those which separate at any part, to flow towards the oceans: no mention is made of valleys, or of the bifurcation of the Cordillera; no mention is made of rivers, of streams, or of springs. Past experience rendered it necessary to find a brief, precise and undoubted formula which should determine the spirit of the existing Treaty, and fix the sole incontrovertible rule which

was to serve to indicate the dominion and sovereignty of each country over the territories on each side of the frontier.

In view of an injunction so absolute which shows the opinion of the Argentine Republic and of Chile, it is inadmissible to outstep the principal chain of the Andes, under any pretext whatsoever, because it is not permissible to encroach on what has been previously determined as an integral part of a foreign dominion, and as a territorial portion of a foreign sovereignty.

If there are rivers which cross the "principal chain of the Andes," whether they flow into the oceans or not, whether they lose themselves or not, such rivers, which are not mentioned in any way in the concrete formula which synthesises the rule of demarcation, they shall belong to the dominion and sovereignty of the two countries, of Chile in their western portion and of the Argentine Republic in their eastern portion.

If legal writers favour different principles in regard to mountain boundaries—which is not the case—; if all the States of the world had accepted different rules—which is not the case either—; it would not be the doctrines of the writers, or international practice which could override the standard which the freely manifested consent of the two disputing nations has sanctioned, the meaning of which is, that the dominion and sovereignty of each one extends as far as the summit of the main chain of the Andes.

Such has been the aim of the two nations. Both have enforced the political view which animated the Kings of Spain, the Colonial Governors, the founders of their national independence, the historians and geographers of all times. If solemn Treaties are not to be set at nought, it is necessary that the Cordillera de los Andes shall in its main chain, at its imposing and majestic barrier, which it is impossible to ignore or alter, serve as a dividing wall, as a sure frontier to the two States, who shall extend up to that point their prerogatives of dominion and their right of sovereignty.

The Experts who, either as functionaries or simply as citizens, were bound to give strict compliance to the Treaties, which are fundamental laws whose observance is paramount, must have sought on the ground for the principal chain to the exclusion of every other detail, knowing that the line at which ends dominion and sovereignty of one of the States, and at which the dominion and sovereignty of the other commences, has been declared by those solemn compacts to be at that principal chain.

The whole of the Treaty of 1881 is expressed in this Article. It is the

“main chain of the Andes,” which must be sought by the Experts to apply to it the letter and spirit of the Treaty of 1881 and of the Protocol itself, settling in a friendly manner the difficulties which might arise concerning matters within that chain. It is that chain which separates the sovereignties and dominions which the same article defines, and which will continue to separate them. *In it alone* can differences arise regarding the marking-out of the boundary line; the boundary is in the main chain of the Cordillera, and those differences cannot occur outside it.

The differences that have arisen in the demarcation of the boundary are now submitted to arbitration: but the sovereignty has not been submitted to arbitration. Sovereignty is not open to discussion: it exists. The Argentine Republic confidently hopes, therefore, that the Government of Her Britannic Majesty will determine the principal chain of the Andes, and in doing so, they will find that the Argentine Expert has with good reason rejected the line of the Chilian Expert, who in one official note has by implication confessed that he did not subordinate his judgment to the stipulations of the Treaties, when in sending to his Government, in 1898, the Records signed with Señor Moreno, the Expert, he said that the line marked out by him was not the crest of a principal chain in the orographic sense of this expression, but simply in the hydrological sense of presenting “a succession of crests, depressions and *any kind of features of the ground* the continuity of which consists in the fact that it is not cut at any part by any watercourse great or small.”

The doctrine of the continental divide having been rejected it was necessary to solve a question in which Chile was interested, namely, the Argentine ports in the Pacific waters.

Several geographical explorations, and among them those by Señor Bertrand, had proved the fact that the Cordillera de los Andes penetrated into the Pacific waters in such a manner that the line of parallel 52, before reaching the Cordillera, had to cross several inlets. As the territories east of the Cordillera and north of parallel 52 belong to the Argentine Republic it was evident that the ports situated in those inlets would remain under her jurisdiction.

While the continental divide question was on the *tapis*, the Chilians hoped that if this theory was accepted the existence of the Argentine ports in the Pacific side would be impossible. However little one reflects on this, one will understand the accuracy of the observation. If the boundary line has to follow in the same direction as the separation of the rivers which run towards the

two oceans, it would be impossible that the shores bathed by the Pacific should remain included in the dominion of the Argentine Republic. The frontier would be traced out on mountains or in plains, but always in the interior of the country, in the regions where the rivers rise and run off in opposite directions. It is impossible to imagine that the line which separates the waters running to the two oceans should penetrate into the inlets of one of them. The simple fact of the penetration would show that the watershed was local and not general, since the waters, in spite of separating, would fall only into one of the seas.

The continental divide once rejected, the boundary along the main chain of the Andes once ratified and all hydrographic detail eliminated, there is no theoretical reason why the chain which forms the boundary should not penetrate into the Pacific; and assuming that this was a real and demonstrated fact, the Chilean negotiator thought that the difficulty ought to be overcome, since he understood that an Argentine port on the Pacific coast was contrary to the justice and equity which served as a basis for the Treaty of 1881.

The Argentine Republic reckoned with those ports, knowing that they were in existence, and Señor Yrigoyen, the Minister, when obtaining from Congress the approval which it was within its authority to grant, read a report from Señor Moreno in which the conviction was expressed that the boundary would enclose within Argentine jurisdiction a part of certain inlets in the Pacific. But from another point of view the Argentine Republic, which has constantly desired to avoid international disputes, was disposed to sacrifice her western ports on condition that the Agreement of 1881 should not be misinterpreted, and that the barrier of the most elevated crests of the Andes should not be overstepped for purposes of depriving her of her Patagonian valleys situated on the eastern side of the Cordillera.

The idea of ceding the said ports in exchange for ending the debate on the interpretation of the principle of demarcation, and of for ever putting aside the continental water-divide, had made headway in Argentine Government circles, and was even considered in the Cabinet Councils. On December 24, 1889, the Minister for Foreign Affairs, Señor Zeballos, intimated as one possible arrangement that the theory of the interoceanic divide might give rise to

“A compromise or a solution, leaving the Patagonian valleys to the Argentine Republic and the Pacific ports or landlocked bays to Chile, a possible outcome of a moderate policy, and which would satisfy joint aspirations.”

The Argentine negotiator had no objection, therefore, to *formally* ¹

renouncing the ports as the Chilian negotiator had had none in accepting the orographic interpretation; and with the object of establishing more emphatically that both things were co-relative, both were stated in the same Article. Consequently, Article 2 of the Protocol of 1893 embodies a compromise containing mutual concessions, viz. on one side the cession of the inlets, and the rejection of the continental divide on the other. In its final part it provides as follows:—

“If in the peninsular part of the south, on nearing parallel 52° S., the Cordillera should be found penetrating into the channels of the Pacific there existing, the Experts shall undertake the study of the ground in order to fix a boundary line, leaving to Chile the coasts of said channels; in consequence of which study, both Governments shall determine said line amicably.”

This hypothesis confutes the theory of the continental divide, and disapproves it conclusively. The Cordillera de los Andes is the boundary from north to south as far as parallel 52° S., and the negotiators thought it possible that, on nearing the parallel, it might penetrate into the channels of the Pacific; they thought it possible that the waters flowing down both slopes of the Andes might fall into only one of the oceans. For this reason, the idea of adopting as a frontier the line of separation of the waters flowing into the Atlantic and the Pacific, was very far from their thoughts. On the contrary, that idea was excluded for ever. If the doctrine of marking out the boundary line along the headstreams of watercourses flowing to the Atlantic and to the Pacific, should have been sanctioned in the Protocol, it would have been absurd to provide in the same Protocol for the possible contingency of finding all waters flowing solely towards one of the Oceans. How could the eventuality foreseen be explained? How does the rule of interoceanic separation harmonize with the possibility of Argentine ports in the Pacific side? So difficult it is to find a means of reconciling such a clear stipulation with a system so opposed to it, that the Chilian Representative has not even tried to explain it.

4. PARTS OF RIVERS.

Article 2 of the Protocol of 1893 contains, as we have seen, the authentic interpretation of the Treaty of 1881, but, in the same Protocol, there are various other clauses which concur in affirming the same idea. Article 1, for instance, after repeating the principle for the demarcation which is to be made at the most elevated crests of the Andes, adds:—

“Consequently, all lands and all waters, to wit:—lakes, lagoons, rivers and *parts of rivers*, streams, slopes situated to the east of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, shall be held in perpetuity to be the property and under the absolute dominion of the Argentine Republic; and all lands and all waters, to wit:—lakes, lagoons, rivers and *parts of rivers*, streams, slopes situated to the west of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, to be the property and under the absolute dominion of Chile.”*

Thus there can be “rivers and parts of rivers” on either side of the frontier line; or what is equivalent, a river may belong to the Argentine Republic or to Chile in its entire length, or only in one or more of its parts. Everything depends on its situation: if it rises to the east of the main chain of the Cordillera and flows into the Pacific, said river, cut by the boundary line, shall belong in “part” to the Argentine Republic and in “part” to Chile.

The words, “parts of rivers,” dissipate all the doubts which the Chilean Expert meant to raise about the Treaty of 1881. If “parts of rivers” can belong to one country, and “parts of rivers” can belong to the other, it is clear and evident that the rivers must be cut; and it is likewise clear and evident that it is impossible to maintain the fitness of the hydrographic basins of the two oceans.

In 1881 it was perfectly known that some rivers cut the main chain and even the whole Cordillera. In 1893, greater numbers of these cases were known, as all the geographers in the service of Chile, among them Señores Steffen, Serrano Montaner, Phillippi, Fernandez Vial, had dealt with those rivers. In consequence, though it was not necessary to insist upon the cutting of rivers, since the “principal chain of the Cordillera” was acknowledged as the boundary, the persistent pretension of the Chilean Expert of totally modifying the limit agreed upon, counselled to the negotiators of the fresh Protocol the convenience of recognising once more the existence of the breaches in the Cordillera.

In view of the circumstances which naturally arise from the clause, Chilean writers have endeavoured to find explanations for the purpose of avoiding them.

* In the translation of the Treaties presented by the Argentine Republic to Her Britannic Majesty's Government, several errors in printing have been committed. Among them may be remarked one in Article 1 of the Protocol of 1893. The sentence, “the most elevated crests of the Cordillera de los Andes that may divide the waters,” is repeated three times in the text of it. Twice it has been rightly copied, but the third time the words, “that may divide the waters,” have been omitted, though they are given in the original Spanish text. The circumstance that on two occasions the sentence appears in its integrity proves that the suppression on the third is simply a mistake. However, it is convenient to point out this mistake, in order to avoid misinterpretations.

As the explanations have no foundation in the wording of the Treaty, or in the negotiations which preceded it, it is clear that they are not satisfactory even to the Chilian commentators themselves. In this they show a noticeable want of uniformity, and a multitude of different theories have been expounded, the authors of which maintain that such theories are applicable to the real origin and scope of the term "parts of rivers." Assuming that as they are all different, misinterpretations must exist, it will suffice to compare some of them with others in order to show how it is that the differences prevailing on this point are due to the groundlessness of any argumentative effort which abandons the only meaning of the expression "parts of rivers."

It would take too long a time to examine all of them, but it will not be superfluous to indicate some of the leading ones, viz. :—

First explanation.—For this Señor Barros Arana is responsible. Referring to the words "parts of rivers," he said in September of 1894 :—

"Doubts might possibly have occurred regarding those streams, portions of rivers, or incomplete rivers which do not reach the sea, a very common circumstance in both countries, above all in the northern regions, where interrupted watercourses are frequently to be met with, on account of the evaporation or filtration which prevents them from filling the hollows to be found in their course."

Later on, Señor Bertrand was of opinion, in accordance with the same views, that "parts of rivers" are "rivers interrupted through a want of current."

This classification of watercourses is not to be found either in the dictionaries or in works of geography. It is not correct to say that only those rivers that reach the sea are called rivers, and that those which do not reach the sea are styled "parts of rivers." * "Complete rivers," no matter how small they may be, are never called "incomplete rivers": the whole can never be considered as part of itself; the whole of a river, whether it flows or not into the sea, is not, cannot be, nor is it rational that it should be a part of a river. "Part of a river" has the same meaning as "fraction of a river." "Parte," according to the Spanish Academy, is a "portion of a whole," and no authority can be quoted to prove that a part is equal to a whole, or that a whole, no matter how small it may be, is a part. The Protocol of 1893 allows "parts" of rivers to remain in the Argentine Republic to the east of the frontier; the other "parts" of the same rivers to remain in Chile, to the west of the frontier.

* According to this theory the Biblical Jordan is not a river, it is a part of one. It is useless to discuss such a doctrine.

The Chilean Representative, in the Statement read before this Tribunal, did not think it necessary to sanction this explanation. Therefore it is needless to dilate further on it.

Second explanation.—This was timidly set forth by Señor Barros Arana in a recent publication,* without, however, clearly adopting the definition himself.

In a footnote inserted in said publication, he writes :—

“In the course of the lengthy journalistic discussion to which the boundary question between Chile and the Argentine Republic has given rise, it has been stated that the negotiators in the latter country meant by these words to refer to those rivers which, having their sources in Brazil and in Bolivia, only belong to her in the latter part of their course.”

It may have been stated in the press that the Argentine negotiators referred to the rivers whose sources were in Brazil and in Bolivia, but the fact is that they never did refer to such rivers. If such a thing has been said, the comprobation of which it has been impossible to find, the author of that saying has only proved that he was totally unacquainted with the geography of South America. It would have been a contradiction in an international agreement entered into with Chile to legislate on watercourses which the Argentine Republic shares with other States, Bolivia or Brazil. Surely no definite fact can be quoted which could render such astonishing interpretation likely. Moreover, the Protocol of 1893 speaks of “parts of rivers” which are in Chile, and of “parts of rivers” which are in the Argentine Republic. If, in regard to this, one admits the absurd idea that the phrase alludes to watercourses which exist at enormous distance from the Chilean frontier and which could only be discussed with the respective nations, Brazil or Bolivia, the expression would be at any rate decisive in regard to Chile, who does not possess to the west of the Cordillera and to the south of parallel 23°, any “parts of rivers” other than those which belong to her among the number of rivers whose sources are in the Argentine Republic.

The deduction would be logical, but the Chilean Representative did not think it necessary in this case either to sanction any such theory.

Third explanation.—This was evolved by Señor Gonzalo Bulnes, late Minister Plenipotentiary of Chile in Germany.

Señor Bulnes, after stating in a few words that “parts of rivers” meant rivers that did not flow into the sea, did not appear quite satisfied, and he applies

* *La Libertad Electoral*, of Santiago, No. 3787, p. 2, note 20.

the term immediately afterwards, as he says, "to the especial case in which the *divortium aquarum* cuts a river at its source."

Señor Bulnes admits, therefore, the possibility of a river being cut. He expresses himself as follows :—

"The other meaning is a fact also known to geographers. It consists in having discovered rivers which flow towards the two sides of a hill, *which renders it necessary in such case to fix the line of the water-divide in the orographic features of the land, by cutting either one of the arms of the river or the slopes in which it takes its origin.* Señor Bertrand, in his well-known *Estudio Técnico*, cites this extract from Reclus :—'Several fluvial basins present a curious phenomenon. The great ridges (*les lignes de faite*), high mountain chains, tablelands or *vegas* which separate two hydrographic basins are intersected by cuts through which the waters of one basin can be emptied into another. When the current induced by a double gradient arrives at this cut, it bifurcates into two rivers which run in opposite directions and sometimes towards two opposite seas.' There is a very well known case of this kind of bifurcation which occurs in South America in the river Cassiquiare, a tributary of two hydrographic systems at the same time. It was mentioned by Humboldt and Bonpland and quoted by Malte-Brun, Letronne, etc., and at the present period by Reclus, who, in his book of physical geography entitled *La Terre* gives a map (plate 100) representing this river and the two opposite basins or hydrographic regions which it supplies with its waters. In reference to this case Reclus says :—'In South America the Upper Orinoco divides itself into two rivers, one of which empties itself into the Atlantic immediately to the south of the great island of the Antilles, and the other, known by the name of Cassiquiare, descends on the south-west to Rio Negro, a tributary of the Amazon. The river which collects the waters of the upper region of the Orinoco is, therefore, tributary to two seas at the same time.'"^{*}

In this paragraph Señor Bulnes arrives at two conclusions which harmonize with the ideas evolved by the Argentine Republic, namely, that the continental water-divide is independent of the orography of a place, and that rivers may be cut by the boundary line, according to which hypothesis, as the Protocol desires to establish it, parts of them will be in both countries.

It is unnecessary to say that although Señor Bulnes is one of the most ardent defenders of the doctrines of Señor Barros Arana, the Chilean Representative did not adopt his remarks on the phrase "parts of rivers," doubtless because he considered them antagonistic to the continental water-divide.

Nevertheless it is well to bear them in mind, because, notwithstanding the reticence which we observe in them, the main fact that the rivers may belong to Chile in part of their course, and to the Argentine Republic in the other part, is always evident.

^{*} Gonzalo Bulnes, *Chile y la Argentina*, 1898, Santiago, p. 174.

Fourth explanation.—It has been pointed out by various writers who, being taken up with the continental divide, and not succeeding in explaining the meaning of the words “parts of rivers,” dogmatically declare that they are empty words devoid of meaning. For want of an explanation, derived from the words themselves, they prefer to ignore them and regard them as non-existent.

Señor Eduardo de la Barra in 1896 stated as follows :—

“The second sophism of *La Prensa* is the following :—The Protocol speaks of *parts of Chilean rivers* that may be in Argentine territory and *vice versa*; then it concludes—the boundary line does not always pass between the slopes which descend one side and the other. The fact is impossible; there are no waters falling from one of the eaves of a roof which ascend the apex and pass over to the other eaves; nor are there any rivers taking their rise in Chile which cross the crest of the Cordilleras and pass over to the Argentine or *vice versa*. The Protocol stated a nonsense without any consequence because *it binds no one and alters nothing*. . . . It was an unfortunate and insignificant stroke of the pen and nothing more—a blot which alters nothing.” *

No one has pretended, as Señor de la Barra appears to think, that waters cross over the crest. What has been maintained, and what is maintained and what Nature reveals is, that watercourses make their way through breaches in the mountains. Moreover, it would be a very convenient way of evading the law to say that its clauses are strokes of the pen, and that its precepts bind no one. Señor de la Barra prefers to maintain that the Protocol inserts a nonsense, instead of acknowledging that it contains the negation of the theory which he upholds.

The said Señor de la Barra, in a previous book which was received by Chile with great applause, wrote :—

“And then that curious enumeration of the waters, triply redundant, attracts one’s attention, although no one succeeds in explaining it satisfactorily, namely, with regard to semi-rivers, or parts of rivers which enter into their composition. Does this bear any distant resemblance to the fantastic river of the popular fable which, after wandering about on one side of the Andes, went over to the other side, looting Argentine lands and cattle like a horde of Indians? Can it refer to the tributaries or affluents of the rivers by regarding them as parts of such? Or do those *parts* of the *rivers* refer to the incomplete rivers which rise in the Andes and lose themselves in the pampas, or which bury themselves and disappear in the sand-wastes of Atacama? Or was this phrase used perchance to meet the contingency that the continental crest might flatten and disappear down to 52° and the waters run about madly, ungoverned by any law? Be it as it may, the expression is

* *Cartas á un Senador de la República*, by Eduardo de la Barra, 1896, Valparaiso, pp. 49 and 50.

absolutely redundant, and is of no importance; *it is an inofficious and erroneous term of a simple enumeration which may be suppressed as useless, it orders nothing and involves nothing.*"*

By this way of reasoning, no right would be secure and no contract clear. Were it possible to suppress the clauses of a Treaty by declaring them inofficious, erroneous or useless, it would be very easy to alter the sense of the phrases and distort the best worded stipulations. By simply saying that a phrase neither orders anything nor involves anything, any harassing principle is evaded. And if no one in Chile succeeds in satisfactorily explaining the question of the "semi-rivers, or parts of rivers" which the Treaty enunciates, it will doubtless not be because the text is obscure, but on account of obstinacy in not recognising the only meaning it possesses.

The Captain of the Chilean Navy, Don Ramon Serrano Montaner, like Señor de la Barra, has written many articles and various pamphlets in defence of the continental water-divide, yet he does not find it easy to reconcile his doctrine with the "parts of rivers" in the Protocol. He writes:—

"And now to finish with the Protocol of 1893, we have only to consider another of its *unadvisable* phrases and of which some Argentine writers take advantage to allege that the 1881 Treaty has been modified. The second part of the Article 1 says:—'Consequently all lands and all waters, to wit:—lakes, lagoons, rivers and *parts of rivers*, streams, slopes, situated to the east of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, shall be held in perpetuity to be the property and under the absolute dominion of the Argentine Republic.' Some one who pretends to know, has assured us that the expression 'parts of rivers,' which is the INTRUDER PHRASE IN THIS MATTER, was inserted to indicate certain rivers in the Desert of Atacama which take their rise in the Cordillera and lose themselves shortly afterwards in the desert sands, often before clearly indicating whether their definite course will be towards the Pacific or to the Atlantic. We have no objection to accept this explanation *as we can find no other in it*, and as the Protocol explains minutely what it means by lands and what it means by waters."†

The rivers of Atacama are all north of parallel 26° 52' 45". The Protocol of 1893 could not refer to them. The region between 23° and 26° 52' 45" was, for the first time, regulated by the Agreement of 1896. In the explanation of Señor Serrano Montaner there is, therefore, some confusion of dates.

If Señor Serrano Montaner had done away with the continental water-divide he would have found another explanation in harmony with the text, and in

* El Problema de los Andes, by Eduardo de la Barra, 1895, Buenos Aires, pp. 169 and 170.

† Límites con la República Argentina, by Ramon Serrano Montaner, 1895, Santiago, pp. 45 and 46.

harmony also with its antecedents, of which Señor Serrano Montaner is not unaware, because in another book he recognises that the phrase was the result of the exigences of the Argentine negotiators.

"This," he says, "was the state of affairs when the bases of the Protocol of 1893 were being discussed. The Record of May (relative to Tierra del Fuego) had left us in an unfavourable position, and in order to recover lost ground *it was necessary to accede to the exigences of the Argentines, and to insert in the same Protocol the phrases 'rivers and parts of rivers' which are on either side of the boundary line, and the phrases 'main chain of the Andes,'* phrases which although they did not in the least alter the very clear sense of the text of the Treaties (in fact they do not alter it, but doubtless it must be observed they make it clearer), yet serve the opposing party as a main argument (*caballo de batalla*) for the purpose of trying to misinterpret the meaning of those Treaties. We especially insist on this point because it is essential that it should be clearly laid down *whose is the responsibility for introducing these phrases into the Protocol of 1893, for as yet we do not know what value the Arbitrator may attribute to them, if the disputes to which these phrases give rise ever reach the Arbitrator, or the consequences which they will bring to the country.*" *

Señor Serrano Montaner was justified in expressing fears regarding the meaning which would be attributed to the words "parts of rivers" and "main chain of the Andes." The simplicity of the concrete formula which they contain on the one hand, and the admitted circumstance that they were included in the Protocol owing to Argentine exigences on the other, must necessarily lead to a firm conviction, that as the system of the separation of the hydrographic basins has been rejected, the boundary must pass over the most elevated crests, or the principal chain of the Cordillera, leaving to Chile on the west, and to the Argentine Republic on the east, the "parts of rivers" which it cuts in its course.

Fifth explanation.—This was explained before the Tribunal by the Chilean Representative.

Even he was unable to free himself from the bad effect produced on him by the words "parts of rivers," and he says that the phrase appears

"only in a referential, obscure and ambiguous form, certainly not as a precept, but as the last vague and harmless expression to which had been reduced in the several stages of the negotiations an idea which had always been resisted when presented in a form capable of altering or obscuring the fundamental rule of the Treaty."

In another part he does not appear very sure whether the phrase has any meaning. He said :—

* *Limites con la República Argentina, por Ramon Serrano Montaner, 1898, Santiago, p. 134.*

“The fact of the existence in the Protocol of words of a referential and subsidiary nature only indicates that *if these have a meaning* it must be in accordance with, but not against, the rule that has been peremptorily established.”

At any rate the history of the negotiation proves that the words, far from having the slight importance attributed to them, formed a special feature of the negotiations, and so much so, that if they had not been set down the Protocol would probably not have been signed. Besides, for the interpretation of treaties, as well as of laws and contracts between private parties, it is not permissible to commence by assuming that they answer to a more or less theoretical thesis, in order afterwards to discover, in the terms which contradict that thesis, some artificial meaning fit to harmonize with the view taken.

The Chilean Representative takes for granted what he attempts to prove, and starting from these premises he seeks for the means of subjecting all the clauses of the Agreements to the principle which he lays down. He proposes to demonstrate that the Protocol of 1893 sanctioned the doctrine of the continental divide; but in order to reach that result when examining the phrase “parts of rivers,” he devotes himself, first and foremost, not to extracting its meaning (if perchance it were doubtful), but to find the means of reconciling it with the separation of the hydrographic basins of the rivers, which are tributaries to the two oceans: which rule he considers “has been peremptorily established,” although it is not indicated in any clause, nor are basins or oceans mentioned. Such a system, besides being contrary to the rules of logic, sometimes leads to a genuine illusion. By dint of harping on the one idea, one gets to think that it is in reality an established fact: and that is the reason why he desires to overcome the pretended antinomy between the hypothetic stipulation which is supposed to sanction a doctrine and the positive and visible phrase which sanctions another.

The Chilean Representative finds that “an imperative stipulation prescribing the crossing of rivers” would have cancelled “*the prescription in an opposite sense established in the Treaty of 1881.*” This last sentence proves the above-mentioned illusion, because in the Treaty of 1881 there is no clause alluding to the cutting of rivers, or even one which contains the words “rivers” or the word “streams.”

The explanations which the Chilean Representative discovers by seeking to reconcile the “parts of rivers” in the Protocol with the continental *divortium fluminis* are not, and cannot be, satisfactory. He explains that “the division of a river into parts is entirely conventional”; that “such sections of a river which run in different or opposite directions may be considered as parts of rivers;” that “the

term "different parts of a river" can also be applied to *such sections as may be found on either side of a range of mountains;*" and that "the different stretches where water flows in a valley, even if they are separated by sections of the same valley where water does not flow, may also be called parts of one and the same river."

But at what conclusion does the Chilean Representative arrive after these definitions? Does he admit that each of the Republics may have within her territory a part of the same river when both parts run in different or opposite directions? Does he admit that to Chile belong such sections of a river as may be found on one side of a range of mountains, and to the Argentine Republic such sections of the same river as may be found on the other side? Does he admit that the Argentine Republic may own a section of those rivers of alternating current which lose themselves and reappear after an interval, and that Chile may own another section of that river? He does not say so. His reasoning is incomplete. He restricts himself to enumerating what he reputes as "parts of rivers," and he has made an incomplete enumeration, because it is impossible to deny that language and common sense give to the words an ample acceptation; for everyone knows that some fraction of a river, whether large or small, whether it buries itself or not, whether it runs in this direction or in that, is a "part of a river."

It is not to be assumed that the Chilean Representative wished to signify that if a river runs across Chile all its "parts" must be Chilean; and *vice versa*, that if a river were in the Argentine Republic all its parts would be in the Argentine Republic. This is not to be assumed, because the negotiators of the Protocols could have had no such trivial intention; its wording does not authorise this explanation, as it has been stated that the rivers and also parts of rivers which are on one side of the boundary line are the absolute property of Chile, and that rivers and also parts of rivers which are on the other side are the absolute property of the Argentine Republic. When rivers are referred to, rivers and nothing else are meant—that is to say, entire rivers from their sources until they lose themselves, in their entirety, and in each of the sections which form them; and when parts of rivers are spoken of separately, the signification is parts of rivers and nothing else, that is to say, sections, fractions of rivers, whatever they may be.

The Chilean Representative adds that the text of the Article does not necessarily imply that the frontier line should leave on either side waters bearing, as a matter of course, these different denominations. This is not what

has been maintained. The Argentine Republic holds that the Article necessarily implies that the frontier line may cut rivers, since parts of them may lie on each side of it.

It is seen, therefore, that all the attempts made with the object of reconciling the Protocol of 1893 with the continental divide theory are completely abortive.

Article 1, which commences by repeating the rule of the Treaty of 1881. prescribing that the Cordillera de los Andes should be taken into account as the primary and capital element, and its most elevated crests as a more defined feature, lays down specifically that it is a consequence of that principle, that land and water, rivers and parts of rivers, on the west or on the east, belong to Chile or to the Argentine Republic fully and absolutely. And when enumerating the waters it does not make distinctions or differences. Nor has the Convention concerned itself with ascertaining the direction towards which they run. Whether it be to the north and to the south, to the east and to the west, to the Atlantic and to the Pacific, this is an unimportant accessory: all land and all water is Chilian if it lies on one side, all land and all water is Argentine if it lies on the other.

It is an elementary rule of legal interpretation that the interpreter is not authorised to make distinctions which the text does not make; and, notwithstanding that the Protocol refers to the Argentine ownership of the parts of rivers which are on one side of the line, Chile does not admit such ownership if the river empties itself into the Pacific; although the Protocol refers to the Argentine ownership of the lakes which are found on one side of the line, yet Chile does not admit such ownership if a river flows out of that lake, if that river crosses the main chain, and if, finally, after infinite windings in its course, it empties itself into the Pacific Ocean.

As this way of reasoning is untenable, it is therefore necessary to conclude that the 1893 Protocol embodies the rejection of the continental divide as the boundary line. If this had not been the prevailing idea, what object would have guided the negotiators to indicate the interpretation they gave to the Treaty of 1881? Why did they state that "according to the spirit of the Boundary Treaty," the main chain of the Andes separates the two neighbouring nations? What other motive could they have had in declaring that "parts of rivers" could remain on the Argentine side, and "parts of rivers" on that of Chile?

All these phrases sound hollow and unmeaning, once the cause which originated them is eliminated. If the theory of the interoceanic *divortium fluminis*

had prevailed, the main chain of the Andes would not have been mentioned, all orographic features would have been excluded, and more importance given to the hydrographic part than that contained in an agreement which made the division of rivers feasible.

5. ARTICLE 6 OF THE PROTOCOL.

Article 6 of the Protocol of 1893 may also serve as an argument for rejecting the continental divide. The Plenipotentiaries, the Governments and the Congresses were so convinced that the interpretation contained in the note of January 18, 1892, signed by Señor Barros Arana, was once for all put an end to, that even in the details these convictions are revealed.

Having been decided to mark the boundary line by means of iron pillars, the new arrangement provided that these should be placed, not at the sources nor on the banks, nor in the courses of rivers, but in the corresponding orographic regions. The clause says :—

“For the purpose of demarcation, the Experts, or in their stead the Commissions of assistant engineers, who act under the instructions given them by the former, shall seek on the ground the boundary line, and fix the demarcation by means of iron landmarks of the kind previously agreed upon, placing one in each *pass* or *accessible point of the mountain* which may be situated on the boundary line.”

Thus, the landmarks are to be placed in the *passes* or on the *mountains* quite independently of the rivers. Señor Barros Arana, in his book of *Geografía Física*, when speaking of *mountains and passes*, gives their true meaning when he says :—

“*Mountains* appear on the surface of the globe in the shape of chains, and, less frequently, isolated.* . . . The natural *passes* presented by mountains are called defiles, ravines, gaps and gorges if they are very high. In some cases the pass presents a deep cleft with precipitous sides ; those are called *quebradas*.” †

Passes and mountains are, therefore, not rivers.

In *passes* and at the *accessible points of the mountain* it is compulsory to place the beacons which show up to what point the jurisdiction of the two countries reaches. The orographic idea which has at all times guided the boundary arrangements between Chile and the Argentine Republic, appears again, forming

* Edition of 1881, p. 45.

† Ibid., p. 47, footnote.

the spirit of a negotiation which localises the limit in the main chain of the Andes. The Chilean Expert officially confesses that his line is not the crest in the orographic sense, but merely in the hydrological sense of presenting a "succession of crests, depressions, and any kind of features of the ground." It is clear that when dealing with such a line it is impossible to comply with the prescription of Article 6, except in the section where passes and mountains exist, which must exist somewhere, seeing that the author recognises that it presents "all kinds of features of the ground."

The negotiators of the Protocol, inspired with orographic views, have not been able to indicate for the purposes of placing the landmarks any but orographic features (*passes or accessible points*); they have not been able to legislate for a line traced *solely* in a hydrological standpoint through all kinds of features. On the plains in the wide Pampas where some rivers take their rise, in those regions which are the uninterrupted continuation of Argentine territory, many miles to the east of the chain of snow and ice, there would be points where the dividing beacons would have been required more imperatively, because there are no visible signs which indicate division. The Protocol has not provided for these, because its authors could not calculate that when, in order to explain the spirit of the Treaties, they declared that the sovereignty of the two nations should extend to the principal chain of the Andes, the Chilean Expert would consider himself authorised to dispense with that main chain, in its only signification—the orographical one—and attribute to this phrase a chaotical, hydrological meaning, which transforms a principal chain into a riddling "succession of crests, depressions, and any kind of features of the ground."*

From any standpoint from which the Protocol of 1893 be studied, one must of necessity conclude that it involves the condemnation of the continental *divortium fluminis*.

The Plenipotentiaries spoke the truth when they said that they had arrived at that point after having considered the present state of the work of the Experts entrusted with the demarcation of the delimitation between the Argentine Republic and Chile, and animated by the desire of removing the difficulties which have embarrassed or might embarrass them in the fulfilment of their commissions; and with this lofty purpose they put an end to the principal

* Note of September 10, 1898. La Cuestion de límites entre Chile y la República Argentina, 1898, Santiago, p. 73.

controversy by rejecting the idea of the interoceanic divide when establishing that the frontier line might cut watercourses and leave "parts of rivers" in either country ; by interpreting the first clause of the Treaty of 1881, and providing that Argentine sovereignty on one side and Chilian on the other, extended to the "main chain of the Andes" ; by admitting the possibility of the frontier being found penetrating into the channels of only one of the oceans ; by ordering boundary landmarks to be placed "one on each pass or accessible point of the mountains" ; and finally by deciding that the visible course of the rivers when descending into the neighbouring plains, and the high peaks which rise on either side of the boundary line, are not "actually necessary" in the demarcation of the frontier.

6. NEGOTIATION OF THE PROTOCOL OF 1893.

The antecedents of the Protocol of 1893, and the details and incidents of the proceedings connected with it, supply fresh elements of judgment which corroborate the preceding conclusions.

The Experts Señores Virasoro and Barros Arana had disagreed regarding the true scope of the Treaty of 1881, when the Argentine Plenipotentiary in Chile, Señor Noberto Quirno Costa, intervened in the controversy. The first negotiations were relatively successful. Two conferences, held on March 10 and 13, between the Argentine Minister, the Minister of Foreign Affairs of Chile, Señor Isidoro Errázuriz, and the Experts Señores Virasoro and Barros Arana, resulted in a Draft of Agreement which was communicated to the Argentine Government by Señores Quirno Costa and Virasoro in a telegram dated March 14, which ran as follows :—

"Yesterday evening at five o'clock we concluded the Agreements copied herein, which shall be signed by the Experts, the Minister for Foreign Affairs and the Argentine Plenipotentiary. *We all understand that by this Agreement the present and future difficulties are removed.* Minister Errázuriz left yesterday for Valparaíso in order to consult with the President of the Republic and his colleagues, and Señor Barros Arana left to-day for said city with the same object ; for it was established by the former, as well as by the Argentine Plenipotentiary and the Experts, that the terms of the Agreement should be previously submitted to their Governments. *As Your Excellency will observe, in the last conference the question was thoroughly discussed on account of the interpretation of the Treaty, as we were of opinion that all motives of ulterior difficulties should be once for all removed.*"

Said Draft, with which it was thought to remove all present and future difficulties, served as a basis for the definite arrangement.

The following are the principal differences between one and the other :—

1. The Draft was an agreement between the Experts, and, in order that it might have force, the opinion of the Governments had to be consulted; the Protocol was signed by the Plenipotentiaries, and approved by the Congresses.

2. Article 1 of the Protocol differs from the correlative part of the Draft in the following words and phrases :—

Draft.

“Whereas Article 1 of the Treaty of July 23, 1881 provides that ‘the boundary between Chile and the Argentine Republic from north to south as far as parallel of lat. 52° S. is the Cordillera de los Andes,’ and that ‘the frontier line shall run along the most elevated crests that may divide the waters, and shall pass between the slopes which descend one side and the other,’ the *demarking* Commissions shall observe this principle as an invariable rule of their proceedings, *and the Experts shall give their instructions in accordance with same.*” *

Protocol.

“*First.*—Whereas Article 1 of the Treaty of July 23, 1881, provides that ‘the boundary between Chile and the Argentine Republic from north to south as far as parallel of lat. 52° S. is the Cordillera de los Andes,’ and that ‘the frontier line shall run along the most elevated crests of *said Cordillera* that may divide the waters, and shall pass between the slopes which descend one side and the other,’ *the Experts and the Sub-Commissions shall observe this principle as an invariable rule of their proceedings. Consequently all lands and all waters, to wit : lakes, lagoons, rivers and parts of rivers, streams, slopes situated to the east of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, shall be held in perpetuity to be the property and under the absolute dominion of the Argentine Republic ; and all lands and all waters, to wit : lakes, lagoons, rivers and parts of rivers, streams, slopes situated to the west of the line of the most elevated crests of the Cordillera de los Andes that may divide waters, to be the property and under the absolute dominion of Chile.*”

3. Article 2 of the Treaty in its final part differs from the Draft in the following words and phrases :—

* The differences in the wording of the Draft and the Protocol are shown in italics.

Draft.

"If in the peninsular part of the south, on nearing parallel 52° S., the Cordillera should be found penetrating into the channels of the Pacific there existing, *the boundary line shall be traced over the crests or interior heights which may leave the coasts of said channels to Chile.*"

4. The provisions relative to the San Francisco landmark are likewise different in the Treaty and in the Draft, as can be seen when comparing them as follows :—

Draft.

"*The Argentine Expert stated that, in order to sign with full knowledge of the matter the Record of April 15, 1892, by which a mixed Chilian-Argentine Commission fixed on the ground the point of departure of the demarcation of boundaries in the Cordillera de los Andes, he considered it indispensable to make a fresh reconnaissance of the locality in order to verify or rectify said operation. He added that this reconnaissance would not delay the progress of the work, which could be simultaneously continued by another Sub-Commission. The Chilian Expert stated that, although he believed that the operation had been carried out in strict conformity with the Treaty, he had no objection to acquiesce in the wishes of his colleague as a proof of the cordiality with which this work was being performed.*"

Protocol.

"If in the peninsular part of the south, on nearing parallel 52° S., the Cordillera should be found penetrating into the channels of the Pacific there existing, *the Experts shall undertake the study of the ground in order to fix a boundary line leaving to Chile the coasts of said channels; in view of which study, both Governments shall determine said line amicably.*"

Protocol.

"*Eighth.—The Argentine Expert having manifested that, in order to sign with full knowledge of the matter the Record of April 15, 1892, by which a mixed Chilian-Argentine Commission fixed on the ground the point of departure of the demarcation of boundaries in the Cordillera de los Andes, he considered it indispensable to make a fresh reconnaissance of the locality, in order to verify or rectify said operation, adding that this reconnaissance would not delay the progress of the work, which could be simultaneously continued by another Sub-Commission; and the Chilian Expert having on his part manifested that, although he believed that the operation had been carried out in strict conformity with the Treaty, he had no objection to acquiesce in the wishes of his colleague as a proof of the cordiality with which this work was being performed, the undersigned have agreed that a revision be made of what had been done, and that in the event of errors being found the landmark shall be transferred to the point in which it should have been fixed according to the terms of the Boundary Treaty.*"

What were the motives which determined the modifications introduced into the Draft? Who proposed them? What was their scope? The Archives of

the Department of Foreign Affairs of the Argentine Republic contain the documents with which these questions may be answered with perfect knowledge.

As seen by the above, the Draft Record concerted by the Experts accompanied by the Plenipotentiaries, was to be previously submitted to the approval of the Governments. On March 14, the Record was accepted by the Chilean Government, and on the 16th of the same month Señores Quirno Costa and Virasoro received a telegram from the Argentine Minister of Foreign Affairs, informing them that the solution arrived at had pleased the President of the Argentine Republic, but that before giving his acquiescence to same, he wished to have some explanations regarding the San Francisco landmark and the coast of the channels in lat. 52°.

In order to give the explanations required, as complete as the Government desired, Señor Virasoro decided to return to Buenos Aires, to communicate them verbally to the Minister.

Before leaving Santiago, a conference was held at the Argentine Legation, of which Señor Virasoro gave an account to his Government in the note dated June 26, 1893, as follows :—

“We, the two Experts, had met in the presence of His Excellency the Argentine Minister, Dr. Quirno Costa, and I informed my colleague, Señor Barros Arana, that I did not consider the accounts given in several newspapers of Valparaíso and Santiago of the terms of the Agreement to be true versions, because it had been stated therein that the watershed had been adopted as a rule of demarcation, in compliance with the Treaty, and that said affirmation was inexact on account of being incomplete by having suppressed the limitations imposed on that rule by said international Agreement, because, although the watershed is a geographical condition which must be sought in the main range of the Cordillera, it could never be referred to as the continental divide, which is an accident that we might perhaps find outside the crest line of intersection of the slopes, and even outside of the true mountain system of the Andes.

“Señor Barros Arana replied that no importance should be given to newspaper articles, as they lacked trustworthy and complete information.

“I then made the remark that public opinion may be led astray by them, and although those publications might tranquillise and satisfy the public in Chile, they might arouse and alarm Argentine public opinion, thus placing obstacles against the success of this negotiation.

“The Minister, Dr. Quirno Costa, reminding the Chilean Expert of what had been said in the several conferences which preceded the Draft of the Agreement, expressed himself in the following terms, and I believe even used the same words :—‘You are aware, sir, that we have agreed that if the Cordillera is crossed by rivers having their sources to the east of it, and disembodying in the Pacific, the line of demarcation running along the principal crest-line must cut those rivers.’

“Señor Barros Arana replied in the affirmative, that said rivers would be cut, but requested that no special mention of the same be inserted in the Record, as it could be written down in another special Record between the Experts, or in an exchange of notes between them. He further added :—‘ By these agreements we insure peace between these two nations, at least for four or five years, during which time the work will not reach the region where its accomplishment might give rise to fresh doubts and discussions.’

“Dr. Quirno Costa, in reply to this latter part, said that he considered the arrangement now made to be the solution of all the difficulties which might arise, as it amounted to a settlement of that which both parties judged to be the true spirit of the Treaty of 1881, and which he condensed in the following terms : nothing for the Argentine Republic on the coast of the Pacific, and nothing for Chile in Patagonia or to the east of the main range of the Andes.

“I make special mention of this exchange of views, and explanations which took place on the aforesaid March 16 with the Chilian Expert, because we, on our part, rightly considered all that had been then treated and agreed upon, as incorporated to the projected bases ; all the more so as the Record which was drawn up, not having been signed, had only the character of a verbal agreement, of the same force as that which had been arranged and spoken on the 16th, the latter only amounting to an explanation of the contents of said Record.”

This communication from Señor Virasoro is of the utmost importance, not only because he was one of the negotiators of the Protocol, but also because of the intervention he took later on in the proceedings.

The Report was presented on June 26, 1893, and some time afterwards the President of the Argentine Republic confided the Ministry of Foreign Affairs to Señor Virasoro, who as head of the department, took part in Congress in the debates which preceded the approval of the Protocol, and furnished all the explanations and antecedents which were required. The Argentine Law of December 11, 1893, which gave legal force to the Treaty, bears the signature of Señor Virasoro, so that there cannot be the slightest doubt as to the importance and meaning given to said Treaty by the Argentine Government, even before it was concluded.

When Señor Virasoro arrived at Buenos Aires he was invited to furnish in a Cabinet Council the necessary data for forming an opinion. As a result of these deliberations the Draft was accepted in general, though with some modifications which in synthesis it may be said are as follows :—

1. The Agreement was to be concluded between the Plenipotentiaries of both countries, and duly submitted to the respective Congresses.
2. It was to be explicitly laid down that if the surveys to be made, showed

that the San Francisco provisional landmark was not situated in the right place, it was to be taken up and removed to the point provided by the Treaties.

3. An arrangement was to be made for reducing the marginal zone of the south-west channels to a width of one mile.

4. It was to be clearly established that *parts of rivers* could remain in either country, or in other words, that the rivers might be cut by the boundary line.

With these instructions Señor Virasoro returned to Santiago. The negotiations continued, therefore, anent those modifications.

Regarding the *first*, no controversy took place. It was easy to convert the Record of the Experts into a definite Treaty, to which end Article 11 was framed as follows:—"The undersigned Ministers understand and declare that, given the nature of some of the foregoing stipulations, and in order to invest with a permanent character the solutions arrived at, the present Protocol shall be previously submitted to the consideration of the Congresses of both countries, which shall be done in the next ordinary sessions, keeping it reserved in the meanwhile."

The *second* was likewise accepted. The following words were added to the paragraphs of the Draft Record relating to the San Francisco provisional landmark:—

"The undersigned have agreed that a revision be made of what had been done, and that in the event of errors being found, the landmark shall be transferred to the point in which it should have been fixed according to the terms of the Boundary Treaty."

The *third* modification gave rise to some controversy. The original Record said, respecting the channels of parallel 52°:—

" . . . the boundary line shall be traced over the crests or interior heights, which may leave the coasts of said channels to Chile."

The Argentine Government considered that the wording was vague and consequently dangerous. They desired to limit the width of the coast to one mile, but the want of an exact knowledge of the topography of the region brought about the compromise determined by Article 2, viz. :—

" . . . the Experts shall undertake the study of the ground in order to fix the boundary line, leaving to Chile the coasts of said channels; in view of which study, both Governments shall determine said line amicably."

The *fourth* modification was perhaps unnecessary. The interoceanic divide

is not adapted to the Treaty of 1881. In order to set it aside as a doctrine, in order to abandon it as a source of uneasiness, and to counteract the effect of Señor Barros Arana's note of January 18, 1892, it sufficed to insist, as had been done in the original Record, that the boundary between the Argentine Republic and Chile is formed by the main chain of the colossal range of mountains which Nature has placed between both nations; it sufficed to declare, as had been done in the original Draft, that the frontier might be found penetrating into the channels of one single ocean; it sufficed to specify, as had been specified in the Draft, that the landmarks should be placed on the passes and accessible points of the mountains; and finally it sufficed to decide, as had also been decided in the Draft, that the courses of the rivers were not actually necessary in the demarcation of the boundary.

The Argentine Government, nevertheless, recommended a further explanation for the purpose of removing for ever all possibility of discussion; consequently the Minister of Foreign Affairs, Señor Anchorena, telegraphed to the Plenipotentiary Señor Quirno Costa on March 29, as follows:—

“The Draft Record which Your Excellency mentions in your telegram of the 14th inst., the explanations of the Expert Señor Virasoro, and the opinion of a council of distinguished citizens have imbued this Government with the conviction that said Draft, in its fundamental part, fixes the basis for the proceedings of the demarcations intrusted to the Experts by the Treaty of 1881. The declarations set forth in that Draft regarding the scope and spirit of said Boundary Treaty, are, in the opinion of this Government, interpretative declarations within the scope and spirit of the Treaty; and in the desire of obviating ulterior difficulties in the proceedings, this Government considers it expedient that the Experts should establish in said Record, that if in the course of the demarcation along the line of the main range of the Andes, rivers should be found cutting the Cordillera, it is understood that said rivers should be cut by the boundary line, following the projection of the latter along the most elevated crests of the main range that may divide the waters, the part which is situated to the east of said line to belong to the Argentine Republic, and that which is situated to the west of it to Chile.”

Thus the Argentine Cabinet sought a further indication which would prevent the “disturbing” doctrine of the continental water-divide from reviving. However, notwithstanding this exigence which was perhaps superfluous, the Government was perfectly convinced that the remaining clauses of the Draft Record responded to the same idea. On the same date of the above-mentioned telegram, March 29, the Minister for Foreign Affairs gave the necessary instructions, in an official document, to the Plenipotentiary in Santiago. In it he

again referred to the expediency of stating that the rivers could be cut, and added :—

“The Government fully approves the proceedings of Your Excellency, considering that owing to them favourable and satisfactory results have been obtained by causing the Chilean Expert to abandon his theory of the *divortia aquarum* and to bind himself to act and to give instructions in accordance with the stipulations of the Treaty.”

The amendment appeared at first to be simple, and easily successful, so much so that the Argentine Plenipotentiary telegraphed to his Government on April 15, as follows :—

“As regards the rivers cutting the Cordillera, we obtained the acceptance of the textual formula of the instruction on the matter which Your Excellency gave me in your note of March 29. Señor Errázuriz and the Chilean Expert consult to-day or to-morrow with the President and other advisers, and I hope that if there is any alteration, it will only be admissible as regards words, and not in a fundamental part.”

Notwithstanding all this, Señor Barros Arana, who had closely followed the negotiation, giving it his aid and assent, changed, perhaps, his views and withdrew from the conferences, thus giving rise to an unexpected obstacle. The Argentine Plenipotentiary continued his efforts with Minister Señor Errázuriz, and obtained the proposals which he transmitted to the Minister for Foreign Affairs in the following terms :—

“As regards the cutting by rivers, the Chilean Government, as a result of the conferences, proposes one or the other of the two following formulas, to be added after the words, ‘as an invariable rule of their proceedings’ in the original Record :

1. “If in the course of the indicated demarcation, rivers should be found rising outside of the Cordillera de los Andes and cutting the latter, those rivers shall be cut by the line of demarcation, following the projection of the direction of said line over the most elevated crests of said Cordillera that may divide the waters ; and that part which is situated to the east of said line shall belong to the Argentine Republic, and to Chile that which is situated to the west of same.

2. “If to the south of parallel 41, owing to circumstances which cannot be foreseen, the line of the most elevated crests that may divide the waters be crossed by rivers that cut it, the Experts, in accordance with the maps which to that effect shall be drawn up, shall trace the boundary line according to the stipulations of the Treaty and those of the present Protocol. Thus for instance, if the river Palena or others have their sources to the east of the Cordillera de los Andes and cut the boundary line of the most elevated crests that may divide the waters, the part situated to the east of said line shall be Argentine, and the part to the west Chilean.”

Both formulas were inadmissible. One because it only admitted that those

rivers could be cut which had their sources outside the Cordillera, whereas those rising within it, but outside of its main chain, had also to be cut. The other, because it limited the rule to that section of the boundary comprised between parallels 41° and 52° . And there was no reason, theoretical or practical, for making exclusions or exceptions. The Argentine Department of Foreign Affairs, unaware of the exact causes of such a sudden change; asked for explanations from its Representative in Chile, with whom a telegraphic conference was held on April 20. The Plenipotentiary, Señor Quirno Costa, in compliance with the request, on the following day gave the clue of the enigma in the first words of his communication as follows :—

“In answer to Your Excellency’s observations in last night’s conference, I beg to tell Your Excellency that my telegrams of the 13th, 15th, 17th and 19th inst. express the incidents of the negotiation, and naturally show the varied formulas and circumstances connected with same, and among them the definite divergence of the Chilean Expert, and his refusal to make any kind of declaration regarding the cutting of the rivers.”

Fortunately this attitude of the Chilean Expert was isolated and individual, and he was unable to persuade either Minister Señor Errázuriz or the Government of his country to accompany him. The unexpected resistance of the Expert might have frustrated the negotiation of the Agreement, if Señor Errázuriz and the Chilean President had not set aside the divergence produced by Señor Barros Arana.

Nevertheless, both functionaries at first believed that one or the other of the two conciliatory formulas presented to the Argentine Representative might be accepted—formulas, the obscurity and deficiency of which, already pointed out, were hidden by the impossibility which they adduced of laying down rules for the demarcation of the boundary in the almost unknown regions of a part of its extent.

The Argentine Cabinet, however, being desirous of greater clearness in the stipulations, persisted in its attitude. On April 23, the Government sent the following despatch to their Plenipotentiary :—

“It is necessary for Your Excellency to acquaint the Chilean Government with our desire to establish clear bases which will prevent fresh complications, because we wish to initiate an era of peace and sincere friendship with the Republic of Chile. If there are any points which cannot be solved owing to a lack of knowledge of the ground, let same be clearly manifested, and suggest means for overcoming those doubts or difficulties.”

The opposition of Señor Barros Arana nearly frustrated the efforts made in

the interests of peace and goodwill; but the vigorous attitude and energy of Minister Señor Errázuriz succeeded in overcoming the resistance of those who followed the views of the Expert, and on April 27, Señor Quirno Costa was able to communicate the successful outcome in the following words :—

“After protracted conferences and Cabinet Councils in which Señor Errázuriz has overcome great resistance, I transmit to Your Excellency *the following solution regarding the incident about rivers*. After the words ‘invariable rule of their proceedings’ in the original Record, it shall read thus :—‘Consequently all lands and all waters, to wit :—lakes, lagoons, rivers and parts of rivers, streams, slopes, situated to the east of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, shall be held in perpetuity to be the property and under the absolute dominion of the Argentine Republic; and all lands and all waters, to wit :—lakes, lagoons, rivers and parts of rivers, streams, slopes, situated to the west of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, to be the property and under the absolute dominion of Chile.’”

The clause could not be more explicit : “parts of rivers” were to be situated in Chile and in the Argentine Republic if the line of the main chain of the Cordillera should find in its course rivers rising outside of it. The watercourses might be cut northward or southward of parallel 41° , in the entire length of the frontier, whether they rose in the Andes, but outside of its central or principal chain, or whether they rose in the valleys or plains. The Argentine President might then well say to his Representative, as he did on April 29 :—

“The Government in Cabinet Council has taken into consideration Your Excellency’s telegram dated the 27th inst., in which Your Excellency transmits *the solution arrived at regarding the question about rivers in the Cordillera*. *The formula transmitted by Your Excellency removes all difficulty in virtue of the broad and general terms in which it is couched, and for this reason the Government has immediately approved it.*”

The Agreement was complete. The gravest of the difficulties, the most serious of all, had been smoothed over, viz. the continental divide as a doctrine on the boundary question had been rejected, and the rivers could be cut by the frontier line.

For this reason only can it be explained that the negotiators manifested that they were animated by the desire of removing the difficulties which had embarrassed or might embarrass the Experts in the fulfilment of their mission, and of establishing between both States a complete and cordial understanding in harmony with the antecedents of brotherhood and glory common to both, and with the ardent wishes of public opinion on either side of the Andes. For that

reason the Chilean Minister, Señor Errázuriz, telegraphed to the former Representative of the Argentine Republic in Santiago, Señor Uriburu, at that time Vice-President of the Republic, as follows :—

“This day an Agreement has been concluded which binds with iron rings the cordial understanding between Argentines and Chilians.”

For the same reason the President of Chile said to his Argentine colleague :—

“The complementary Protocol of the Treaty of 1881 will render immutable the close and cordial connection between Chile and the Argentine Republic.”

These eloquent manifestations and the festivals which followed to celebrate the friendship of the two kindred peoples once more prove that the fundamental question of the frontier divergences had been removed, viz. the *alma mater* of diplomatic debates, the interoceanic *divortium fluminis*,—the practical result of which would have been the suppression of the Cordillera de los Andes as a boundary, in order to incorporate to Chile the eastern valleys of that Cordillera, and even a part of the Patagonian plain, in violation of the text and spirit of the Treaties.

After the explanation of the words “parts of rivers” contained in the Protocol of 1893 it is like shutting one’s eyes against evidence to pretend that, in spite of everything, the old question had remained standing, and that it is still necessary to furnish examples and texts in order to demonstrate that the Treaties express what they really say, and not what the efforts of error strive to make them say.

CHAPTER XI.

Summary—1. INSTRUCTIONS OF JANUARY 1, 1894.

2. DISAGREEMENT OF THE EXPERTS, SEÑORES QUIRNO COSTA AND BARROS ARANA.
3. THE 1895 AGREEMENT.
4. QUESTIONS WHICH BROUGHT ABOUT THE AGREEMENT OF 1896.
5. SOLUTIONS AGREED TO IN THE AGREEMENT OF 1896.

1. INSTRUCTIONS OF JANUARY 1, 1894.

THE difficulties of the Experts being settled by the explanations in the Protocol of May 1, 1893, there remained definitely fixed the principle according to which, in case the high crests of the Cordillera should be crossed by any river, the river should be cut by the boundary line. This same principle was once more confirmed by the Government of Chile, when insisting that the Government of the Argentine Province of San Juan should suspend the levying duties in the valley of Los Patos on the supposition that when marking out the definite boundary the said valley might be ascribed to Chile. Thus acting, the Chilean Government sought to prevent the Argentine authorities from exercising jurisdictional acts in a territory which they considered doubtful. This Chilean claim had no consequences, but the mere fact of its being put forward shows the deep conviction the Chilean Government had that rivers could be and ought to be cut by the boundary line, since it is evident that in order that said valley should belong to Chile, the frontier line had to cut the river of the same name, which crosses the Andean eastern ridge. This fact, well known since the time of the Spanish conquest, is shown in any map.

Up to the moment of the Protocol being sanctioned, neither the continental divide nor any other divide independent of orographic features, had ever been applied in Chile, when dealing with international, interdepartmental or interprovincial boundaries. In the *Geografía Política de Chile*, published by Señor Echeverría y Reyes,* a work which has received official sanction and of which mention has already been made, the words *continental divide* are not even once

* Santiago, 1888, 2 vols.

met with, but the following are found :—"culminating line of the Andes," "culminating line of the Cordillera," "ridge of the hills," "the summit of the hills," "summits of the hills," "ridge of the hills," "top of the hill," "top of the ridge," "top of the Cordilleras," "top of the Cordillera de los Andes," "summit of the Cordillera de los Andes," "summit of the Andes," "the Cordillera," "the Andes," "the Cordillera de los Andes," the "top of the chain of mountains," "summit of the mountain ridges," "tops of the mountain ridges," "tops of the hills," "high summits," "Snowy Chain," "Snowy Chain of the Cordillera," "Snowy Chain of the Andes," "Anticlinal line of the Andes," "crest of the Cordillera de los Andes." It was not, therefore, strange that, owing to incomplete information, the Chilean Government should think it possible that the valley of Los Patos, in spite of its waters crossing to the east, might pass over to Chilean jurisdiction, when the Experts should agree upon the dividing line in the Cordillera.

The task of the delimitation on the ground could now be proceeded with.

Up to the end of 1893 the Argentine Experts had not examined the ground for delimitation. Señor Pico had died before solving the first difficulties raised by Señor Barros Arana ; Señor Virasoro had retired from his mission immediately after the signing of the Protocol of 1893, to become Minister for Foreign Affairs, and was replaced by Señor Quirno Costa, who was also accredited as Argentine Minister at Santiago.

In order to carry out the demarcation, the Experts, Señores Barros Arana and Quirno Costa, proceeded in the last month of 1893 to draw up instructions for the assistant engineers who had to trace the dividing line in the Cordillera de los Andes.

The Chilean Expert proposed in his scheme that the heads of each surveying party "*should take it as a rule that a landmark should be placed at each point of the dividing line of the waters where crossed by a road or path, and at each pass of the same line that might serve as a point of communication between both countries.*"

The heading of the document which contains the said proposition is, "*Rough Draft of Instructions for the Assistant Surveyors entrusted with the demarcation of the boundary line in the Cordilleras, proposed by the Chilean Expert in 1893.*"* It is not specified in this document that the demarcation must be performed in the Cordillera de los Andes, as established in the Treaties. The word "Cordilleras" is only employed, and being used in Chile in different ways, as is well known, this ambiguity in itself might lead to confusion, especially on account of the

* Bertrand, Estudio técnico, p. 135.

views of the Chilian Expert with regard to the stipulated boundary ; however, as it was impossible to depart altogether from the idea of mountains in the demarcation, in the chapter concerning the operations on the ground, he says :—

“5. As according to the Treaty and the Experts’ arrangements, *the line dividing the waters is the one which shall serve as the frontier between the two countries, the demarcation of the boundary is reduced to the fixing of the accessible points of that line, viz.—passes or gaps.*

“6. In the regions of the Cordillera where the course of the waters is permanent and clear, the simple inspection of the ground will enable the Commissioners to fix with precision the points of separation of the slopes.

“7. In the regions *where the ravines are habitually dry*, an examination shall be made of the declivity of the ground in order to find each point of separation or division between the opposite valleys.

“8. Where there appear one or more valleys or basins without actual outlet, levels shall be taken between the various exits of the said *valley or basin*, in order to locate its topographical outlet, and to determine to which hydrographic system it belongs.

“9. Where there are found in the region of watersheds, flat places or marshes in which it is not practicable to determine by means of the level a line of marked separation between both slopes, or where there are found streams, rivers or lakes which drain towards both countries, a plan shall be made of the whole region in doubt, whilst collecting all data which can serve as a basis for effecting an equitable and amicable division.

“10. At every point where a landmark has to be fixed, whether a provisional one is to be placed or an iron pyramid be at once planted, bearings shall be taken at the most notable points of the horizon as well as photographic views in order to locate the spot. A minute shall therefore be drawn up recording between which opposite valleys the points chosen serve as a separation, as well as all further data and circumstances. This minute shall be signed by the whole of the assistants on the Joint Commission.”

Although in this project the Chilian Expert again insisted that the frontier-line is that of the division of the waters, he speaks in his proposed instructions *of fixing the accessible points, in the passes or gaps* ; of the regions “of the Cordillera” where there are “ravines habitually dry,” and of “valleys or basins without actual outlet” ; in a word, he speaks of orographic features, as he could not do otherwise.

However, the Argentine Expert, Señor Quirno Costa, did not consider it expedient to accept this Draft of Instructions, and therefore, after some discussion, another one was accepted in its stead, and the orographic boundary was clearly determined upon, as defined by the watershed of the principal crests of the Cordillera de los Andes.*

* “Instructions for the assistants who are to mark out the boundary line between the Argentine Republic and the Republic of Chile in the Cordillera de los Andes :

“*Preliminary operations.*—Article 1. The chief of each Sub-Commission shall be provided with a copy of

The Instructions of January 1, 1894, contain the orographic idea, and on no single occasion, even incidentally, are the Commissions enjoined to procure data with regard to the course of the rivers. On the contrary, they are instructed to study the Cordillera, its main chain, or its most elevated crests.

Although the text of the Instructions is in itself explicit, it appears more conclusive still when it is compared with the text of the rejected project, beginning by their respecting headings. In Señor Barros Arana's Draft it was said with studied vagueness that the boundary line was to be located "*in the Cordilleras.*" In the Instructions approved it was clearly specified that the boundary must be marked out in the "*Cordillera de los Andes.*"

Besides, Señor Quirno Costa, in view of the omission of any reference to

the Boundary Treaty of July 23, 1881, and of the Protocol of May 1, 1893, which form the paramount rule of the demarcation; and likewise a copy of the Convention of August 20, 1888. He shall likewise provide himself with all the plans and descriptions existing relative to the region in which he has to operate, as well as with all the instruments which he may consider necessary, and a spare supply of such as are suitable for measuring heights.

"Article 2. He shall prepare beforehand an estimate of the expenses of his expedition, which he shall present to the respective Expert, in order to receive the funds for same.

"Article 3. The chiefs of each Sub-Commission shall jointly draw up a map of the work for the season, and shall form an approximate list of the points where it may be proposed to place landmarks. They shall seek the boundary line on the ground and fix the demarcation by means of iron landmarks of the kind previously agreed upon, placing one in each pass or accessible point of the mountain which may be situated on the boundary line, and shall draw up a record of the operation, specifying the fundamental reasons of same, and the topographic indications for recognising at all times the point fixed, although the landmark might have disappeared by the wear of time or atmospheric action.

"Article 4. In accordance with said lists, approved by both Experts, each mixed Sub-Commission shall be furnished with the necessary number of iron pyramids which are to serve as landmarks. These pyramids shall be taken to a spot whence they can be distributed among the different points marked out during a season of work. The chiefs of each mixed Sub-Commission shall decide in each case, with the approval of the Experts, on the expediency of placing provisional landmarks, or the pyramids, according to the facilities for transportation offered by the roads, and the knowledge they may have of the localities.

"Article 5. *Operations on the ground.*—It having been provided in Article 1 of the Protocol of May 1 last, that the Experts and the Sub-Commissions who are to operate in the Cordillera de los Andes shall have as an invariable rule of their proceedings, the principle established in the first part of Article 1 of the Treaty of 1881, said Sub-Commissions shall investigate the situation in said Cordillera, of the main chain of the Andes, in order to seek in same the most elevated crests that may divide the waters, and shall mark the frontier line on their accessible parts, making it pass between the slopes which descend one side and the other."

"Article 6. In the regions where, according to what is foreseen in the second part of Article 1 of the Treaty of 1881, and Article 3 of the Protocol of 1893, the watershed might not be apparent, through the existence of certain valleys formed by the bifurcation of the Cordillera, the Commissions shall carry out the necessary topographical operations for obtaining the data determining the geographical condition of the demarcation mentioned in the aforesaid Article 3 of the Protocol, and shall mark said data on a map which they shall present to the Experts in accordance with the same Article.

"Article 7. At every point where a landmark has to be fixed, whether a provisional one is to be placed or an iron pyramid be at once planted, bearings shall be taken at the most notable points of the horizon as photographic views in order to locate the spot. A Minute shall, therefore, be drawn up, recording

the 1893 Protocol, in the Draft of the Chilean Expert, thought it indispensable to point out that the clauses of said Protocol should be observed, and it was accordingly so determined in the first lines of the Instructions.

Article 1 of the project drafted by Señor Barros Arana stated :—

“The chief of each Sub-Commission shall provide himself with all the plans and descriptions existing relative to the region in which he has to operate. He shall carry such instruments as he may consider necessary and a spare supply of such as are suitable for measuring heights.”

Article 1 of the Instructions approved reproduced the same phrases with slight difference in wording, but they were preceded by these words :—

“The chief of each Sub-Commission shall be provided with a copy of the Boundary Treaty of July 23, 1881, and of the Protocol of May 1, 1893, which form the paramount rule of the demarcation; and likewise a copy of the Convention of August 20, 1888.”

This omission of the 1893 Protocol might possibly be attributed simply to forgetfulness, if it had only occurred on one occasion. The repetition proves that such omission had an object. In fact, on August 29, 1898, when defining the general line which he had projected, Señor Barros Arana stated that—

“. . . for the tracing of said line he had solely and exclusively followed the principle of demarcation established in Article 1 of the Treaty of 1881, a principle which must also be the invariable rule of proceeding of the Experts according to the Protocol of 1893.”

The Argentine Expert, who at that time was Señor Moreno, thought the

between which opposite valleys, the points chosen serve as a separation, as well as all further data and circumstances. This Minute shall be signed by the whole of the assistants of the Joint Commission.

“*Geographical and Meteorological work.*—Article 8. Each Sub-Commission shall keep a register for noting down—

- (a) The maximum and minimum temperature of each encampment.
- (b) The atmospheric pressure registered by mercurial and aneroid barometers, in each culminating point, pass, etc.
- (c) The temperature at which water boils, in same points.
- (d) The geological and botanical indications or other observations which it may be possible to obtain without prejudice to the work of demarcation.

“Article 9. The latitude of each landmark and encampment shall be observed by meridional altitudes.

“Article 10. The longitudes shall be determined by the occultation of the stars or other methods, where it is possible.

“Article 11. By means of the foregoing elements, and of the azimuth of the principal and snow-capped summits of the Cordillera, they shall form, as far as possible, a chain of triangles, connecting the various points of the frontier line, in accordance with the provisions of Article 7 of the Protocol of 1893.

time had arrived for asking explanations, by the very fact of all the other Conventions having been excluded.

The Chilean Expert did not evince any great anxiety to recall the Protocol of 1893, and it was necessary for Señor Quirno Costa on one occasion, and Señor Moreno on another occasion, to call his attention to it, so that it might appear in the Instructions of 1894, and in order that some of its prescriptions should not be omitted in the Records of 1898.

Reverting now to the Instructions of January 1, it is to be remarked that Article 3 of the Project of Señor Barros Arana laid down that the chiefs of the Sub-Commissions—

“should take it as a rule that a landmark should be placed at each point of the dividing line of the waters where crossed by a road or path, and at each pass of the same line that might serve as a point of communication between both countries.”

This clause would have been absolutely inconsistent with the orographic spirit of all the Treaties, and especially with Article 6 of the Protocol of 1893, which had provided that the landmarks should be placed “one in each pass or accessible point of the mountain which may be situated on the boundary line.”

The Project was rejected. The mere fact of its rejection shows that the *dirortium aquarum* was proscribed from the Instructions: but these Instructions, in order to further accentuate the idea, renewed the directions to the Sub-Commissions never to depart from the Cordillera, which was the fundamental principle to be observed. Therefore the idea of mentioning the dividing line of the waters was repudiated, and it was said:—

“They (the chiefs of the Sub-Commissions) shall seek the boundary line on the ground, and fix the demarcation by means of iron landmarks of the kind previously agreed upon, placing *one in each pass or accessible point of the mountain*, which may be situated on the boundary line.”

It is unnecessary to examine in all their details the Instructions of January 1. It is sufficient to show that all references which the Chilean Expert proposed regarding the interoceanic divide were rejected, and substituted by others that agreed with the rule that the boundary runs along the main chain of the Cordillera de los Andes. Nevertheless, it is desirable to quote Article 5, which speaks of the operations on the ground, because in it there is expressed the intention which served as a standard for the arrangements of the Experts.

Señor Barros Arana had drafted Article 5 as follows:—As according to

the Treaty and the Experts' arrangements, the line dividing the waters is the one which shall serve as the frontier between the two countries, the demarcation of the boundary is reduced to the fixing of the accessible points of that line, viz. passes or gaps.

This having been rejected, as it ought to be, it was substituted in this manner :—

“It having been provided in Article 1 of the Protocol of May 1 last, that the Experts and the Sub-Commissions who are to operate *in the Cordillera de los Andes* shall have as an invariable rule of their proceedings, the principle established in the first part of Article 1 of the Treaty of 1881, said Sub-Commissions shall investigate the situation *in said Cordillera, of the main chain of the Andes*, in order to seek, *in same, the most elevated crests that may divide the waters*, and shall mark the frontier line on their accessible parts, *making it pass between the slopes which descend one side and the other.*”

That is to say, the Experts and the Sub-Commissions have to operate in the Cordillera de los Andes and never, under any pretext whatever, outside the Cordillera. This is the recognised boundary : this is the fundamental basis of the Survey, to which everything is subordinate. The first thing is to seek the Cordillera. Within it, the boundary must be found ; outside it, there are no frontiers and no disputed regions : there are territories over which the Argentine Republic and Chile exercise absolute dominion, as they form a part of their respective sovereignty. The Experts and the Sub-Commissions must “investigate the situation *in said Cordillera of the main chain of the Andes.*” The main chain must of necessity be found in said Cordillera, and it is not a question of seeking for any chain but the principal one of all, the most prominent one, that which by reason of its height forms “the most prominent feature in the configuration of the country,” to use the expression of Pissis.* The *main chain* should contain *the most elevated crests*, and the Experts should investigate the situation of the main chain, not with a theoretical object, but in order to seek *in it the most elevated crests* that may divide the waters. In the Cordillera de los Andes, in the main chain, i.e. on its most elevated crests, the line must be sought which divides the waters belonging to it. Thus, and only thus, can the line be determined “between the slopes which descend one side and the other.”

The Chilean Expert, in spite of all these facts, after agreeing to these Instructions, changed, perhaps, his opinion regarding them. After consenting

* A. Pissis, Geografía Física, 1875, Santiago, p. 2.

that the clauses of his project which mentioned the division of the waters as the absolute rule should be omitted ; after consenting to the new clauses which in substitution of those drafted by him, affirmed the orographic principle ; after the Experts' arrangements were completed ; Señor Barros Arana again pointed out the interoceanic divide, declaring—

“That although the cordiality and good harmony with which the operations of the demarcation have been re-established enabled him to hope that no difficulties will arise on the ground in regard to the interpretation to be given to the Instructions agreed upon, he thinks it is his duty to declare that by the words ‘*encadenamiento principal de los Andes*’ he understands the uninterrupted line of crests which divide the waters and which form the separation of the basins or hydrographic regions which are tributaries to the Atlantic on the east and to the Pacific on the west, thus determining the limit between the two countries according to the principles of geography, the Boundary Treaty [the Expert again set at nought the Protocol of 1893], and the opinion of the most distinguished geographers of both countries.”

The Argentine Expert, who could not recognise in the Chilean Expert the right of overruling the authority of the Governments and Congresses of the two countries to the extent of altering the meaning of the words, replied, “that he regretted the insistence of his colleague in wishing to establish the definition of what he understood by main chain of the Andes (*encadenamiento principal de los Andes*), because that did not come within the powers of the Experts,” and immediately afterwards, going fully into other considerations, he quoted the Protocol of 1893—omitted by the Chilean Expert—which mentions the territorial sovereignty of each country. He also said that it was by virtue of the considerations he had expressed—

“that he ought not to deal with the words employed by the Chilean Expert to define the principal chain of the Andes, being unable for this reason to take into consideration any excess or deficiency in the definition, and specially when no difficulty had arisen on facts which should cause him to consult his Government, nor was it likely that it would arise, in what his colleagues also agreed.”

At any rate, the Instructions were signed. The interpretation which the Chilean Expert gave to some of the paragraphs could not invalidate the interpretation which the negotiators of the Protocol of 1893 had given to those same paragraphs previous to the exchanging the ratifications of the settlement.

For the rest, the definition of Señor Barros Arana does not withstand the slightest analysis. Were it necessary to prove that the main chain of the Andes is the main chain of the Andes and not the uninterrupted line of crests which

divide the waters, and which form the separation of the basins or hydrographic regions which are tributaries to the Atlantic on the east and to the Pacific on the west, two authorities might be advanced: the ground itself and Señor Barros Arana.

The ground is the best and most complete demonstration of the mistake conveyed by those words: there is not to be found in it that uninterrupted line of crests that divide the waters in the form it is alleged.

Señor Barros Arana has recognised this, theoretically as a geographer and practically as an Expert. As a geographer, he has laid down a truism which Nature frequently reveals, namely, "there are cases in which the separating line of the waters is simply a plain."* It is needless to say that, however much expressions may be strained, it will be impossible to make it appear that the main chain of a Cordillera—and of such an imposing Cordillera as that of the Andes—is nothing more than a plain. As Expert, he has confessed that the line drawn is not an uninterrupted line of crests in an orographical sense, but that it is a "succession of crests, depressions and any kind of features of the ground."† It seems superfluous to point out that a main chain of mountains is not made up of all kinds of physical features.

The Chilean Expert, by his declaration, not only again altered the letter and the spirit of the Treaty of 1881, but likewise that of the explanatory Protocol of 1893 which had settled the difficulties raised by him when drafting, with Señor Virasoro, the Instructions which he had been unable to arrange with Señor Pico.

The Chilean Government had decided, in accordance with the Argentine Government, that the boundary should be sought in the main chain of the Cordillera de los Andes, in the central chain which Señor Barros Arana himself referred to in his note to Señor Pico, dated January 18, 1892; and that if, when tracing the boundary, rivers were met with crossing the said chain, the sources of such rivers situated to the east of the line should lie in Argentine territory. Señor Barros Arana had not, prior to the Protocol of 1893, raised any doubt as to the only orographical meaning of the words "main chain," nor did he think it advisable, when the Protocol was framed, to have this term clearly explained; but once the Protocol was in force, he attempted to minimise its importance

* Barros Arana, *Geografía Física*, 1881, Santiago, p. 135.

† *La cuestión de límites entre Chile y la República Argentina*, by Diego Barros Arana, 1898, Santiago de Chile, p. 73.

by placing on record his peculiar views on the main chain of a mountain system,—views which are contrary to the opinion of all the geographers, and contrary also to the opinion expressed by himself in his *Geografía Física*, where, at page 41 (1st edition), he states : The main chain of a group or system of mountains is considered to be the chain whose slopes and sides shed the greatest quantity of water which feeds great rivers. *

The Cordillera de los Andes was now no longer, in the opinion of the Chilean Expert, what, in his works, his negotiations of 1876 and 1878, and in his oft quoted note to Señor Pico, he assumed it to be ; nor was it in accord with the opinion of Chilean geographers and statesmen.

2. DISAGREEMENT OF THE EXPERTS SEÑORES QUIRNO COSTA AND BARROS ARANA.

On February 8, 1894, the first landmark in the Andean Cordillera was placed in the main chain, and the operations were continued. The relations between the Experts, however, were somewhat strained owing to the many disputes which arose.

Thus, for instance, when the Experts met in Santiago to consider some of the landmarks placed by the auxiliary Sub-Commissions, Señor Barros Arana said that, "although he thought that, according to the tenor of Article 4 of the Convention of August 20, 1888, the works carried out by the mixed Sub-Commissions, in accordance with the Instructions that had been given them, did not require any special approval, he had no hesitation in giving his own." This opinion as to the independent powers of the Sub-Commissions, had been previously advanced, but rejected. Had it succeeded, the ratification of the San Francisco landmark, placed by the assistants, would have been obtained by indirect means. The Argentine Expert then insisted that "the operations of the Sub-Commissions are carried out under delegacy of the Experts according to the Convention of 1888, the latter giving them instructions for their procedure ; it being, therefore, a duty of the said Experts to pronounce on the accuracy of the works they carry out."

* In his note to Señor Pico, he adopts another view as to the principal chain when mentioning the opinion of Adriano Balbi, in chapter ii. of his *Geografía*, who says on this subject that "that which is considered to be the main chain of any group or system of mountains, is formed of those mountains whose sides or culminating points give rise to considerable streams of waters," etc. *Estudio Técnico de la Demarcación de límites entre Chile y la República Argentina*, por Alejandro Bertrand, Santiago de Chile, 1895, p. 105.

That incident was thus closed ; but on August 6, 1894, Señor Barros Arana addressed a note to the Argentine Expert, in which he recognised to a certain extent that the definite approval of the line marked out, came within the province of the Experts, and suggested the desirability of such approval being expressly extended also to the contents of the documents of demarcation signed by the assistants. Were this accepted, the Chilian Expert would have succeeded in having the *divortium aquarum* recognised,—also in an indirect way,—as the only rule of demarcation, which, though contrary to the text of the Treaties, was persistently mentioned in their minutes by the Chilian Surveyors. The Argentine Expert objected to that procedure—

“for it would not add a single element to the validity of the demarcation ; it would create difficulties for the Experts themselves, as it would be very likely that they might be in accord as to the placing of a landmark, but be in disagreement as to the statements which the assistants of one Sub-Commission or the other might respectively make in the documents.”

Among the divergences between the Experts there is one which requires mention : the one relative to the boundary mark erroneously placed in the San Francisco Gap.

The antecedents of this landmark are the following. The Treaty of 1881, as well as the Protocol of 1893, directs that the boundary shall be traced in the Cordillera de los Andes. The Argentine Surveying Commission, relying upon their own examination and upon that of the Chilian, asserted that the Pass of San Francisco, where the first landmark had been planted, was not situated in the Andean Cordillera, but that it belonged to the system of the Cordillera Real de Bolivia in its prolongation towards the south. Señor Barros Arana contended that these mountains, situated in the Argentine Republic, far from her frontiers, formed part of the Cordillera de los Andes, against the opinion of all the geographers who had studied them and considered them, on the contrary, as a prolongation of the Cordillera Real de Bolivia.

If Señor Barros Arana and his assistants had, in 1890, acquiesced in the proposals of Señor Pico for the survey of the ground, before marking out the dividing line, this difference would not have arisen, nor would many others which will be dealt with later on, and suggestions would not have been put forward, such as that the dividing summit of the Treaties could be situated on the snow-capped mountain of Famatina. What would Canada say (if the zone of the United States boundary had not been limited to thirty miles inland from the

general line of the Alaska coasts) to fixing the boundary on the summit of the Coast or Cascade Range, if the United States, wanting to carry that line to Mount Hooker in the Rocky Mountains or even more to the east, claimed that these mountains were the Cascade Range?

The question of whether the San Francisco Gap is, or is not a frontier point, in accordance with the Treaty of 1881 and the Protocol of 1893, constituting one of the differences between the Experts which have been submitted to the Arbitration of Her Britannic Majesty's Government, it will be well to relate the erroneous placing of the landmark in that gap and the incidents connected with the surveys, for the purpose of settling its removal to the proper place, leaving aside, for the present, the demonstration of the fact that this place is not situated on the Cordillera de los Andes.

The haste with which the operation of the boundary demarcation was begun, and the way in which it was carried on, led to the erroneous fixation of the place for the boundary mark in the Pass (Portezuelo) of San Francisco, an operation in which Señor Alejandro Bertrand, the head of the Chilian Commission, had a share. On this occasion Señor Bertrand acted against his former opinions respecting the Andean range (*Cordon Andino*) or crest of the Cordillera de los Andes, and respecting the groups of isolated mountains among which he included that of San Francisco.

The Chilian Expert had at that time already begun to maintain the line of the continental divide as the boundary between the two nations, trying to remove the limit from the Cordillera de los Andes, the "immovable boundary" of the Treaties, to places where it could be proved that the watershed was not found within the Cordillera. In the Record of the Sub-Commissioners, dated April 15, 1892, *which was not approved by the Argentine Expert*, it is stated that a boundary mark is placed in the Pass or Portezuelo of San Francisco, but there is no mention of any survey made there, and it is erroneously stated that the "portezuelo" is situated in the Cordillera de los Andes, as the assistants assumed that they were in the Cordillera de los Andes, and the Record was signed in that false belief.

The Chilian assistants said that they placed the boundary mark at that point, because, according to their judgment, the Treaty of 1881 stipulates that the dividing line shall pass between the "vertientes" (slopes) which descend one side and the other. The Argentine assistants did not say in the Record a single word with reference to any survey made by them to be certain that the Pass or Portezuelo of San Francisco is situated in the Cordillera de los Andes, in its

“line of most elevated crests which may divide the waters.” They erroneously considered, *as an order to place the first landmark which should indicate the boundary line*, the instructions given them, while those instructions only required that they should go to the Pass of San Francisco, chosen as a starting point, “*to begin the work of demarcation.*” They knew, besides, that the Expert, Señor Pico, could not order them the demarcation of the frontier without previous examination of the ground, and for this reason they have been accused of precipitation in the operation.

It has been said that the agreement of the Experts to begin the labours of the demarcation on the ground from the Pass of San Francisco southwards, is founded on the previous examination which the Experts made respecting that part of the Cordillera, by means of existing maps and geographical descriptions. These maps and geographical descriptions marked the boundary in the chain of Maricunga which bore the name of *Cordillera de los Andes*, indicated the existence of a central intermediate chain or cordon (that of Tres Cruces), and represented the Pass of San Francisco as situated in the prolongation of the eastern chain or *Cordillera Real de Bolivia*, which terminates in the centre of the Argentine territory. Had the Expert, Señor Pico, examined those maps and descriptions, he could not have arranged that the first boundary mark should be placed at a point which all geographers up to that date had considered as being to the east and outside the Cordillera de los Andes, or of the “Andean Cordon,” or “Cordon de los Andes.”

Besides, the landmark was located without any previous survey, and to prove it, it suffices to read the Report presented by the Chilean assistant, Señor Bertrand, to his chief, Señor Barros Arana.* On April 1, 1892, the Joint Commission left Copiapó. Three days after, it reached the foot of the Cordillera of Maricunga. The advance of the season, according to Señor Bertrand, did not allow great delay.

“We followed our march,” he adds, “with accidents inevitable when travelling in these regions. On April 8 *we passed the Portezuelo of San Francisco*, and we pitched our camp on the level ground (vega) of the same name, at some twenty kilometres (twelve miles) eastward from the pass. . . .”

The following days till the 11th were spent in constructing a hut ; on the 12th and 13th snow fell, and it was necessary to suspend work. Señor Bertrand proposed to Señor Diaz, the Argentine chief assistant, “to take advantage of the

* Alejandro Bertrand, Estudio técnico, p. 117.

first fine day to mark out on the ground the starting point of the frontier line, and to confine geographical operations to those that the time at our disposal would allow."

It is not necessary to prove to the Tribunal the haste with which the work proceeded, and that will by itself explain the reason why the Argentine Expert refused to approve and ratify the Record drawn up on that occasion. There was no investigation made of the surrounding ground, to find out whether in reality the Joint Commission was in the Cordillera de los Andes, and whether the Portezuelo of San Francisco was situated in the line of "the most elevated crests of said Cordillera that may divide the waters." This investigation did not concern the Chilean assistants, since it was easy for them to know that the landmark in San Francisco could not in any case be prejudicial to Chile. But the Argentine assistants, who in accordance with the Treaty of 1881, were required "to begin the labours of the demarcation" in "the Cordillera de los Andes," ought to have commenced by knowing what that Cordillera was, and where it was to be found.

The Argentine Expert, Señor Pico, who gave the instructions for the work, in the meantime died, and his successor, Señor Virasoro, was for his part decidedly against the approval of the location of that San Francisco landmark. His reasons for objecting were, first, the want of investigations and surveys previous to that location, and secondly, the fact that one of the assistants who had been engaged in its location, expressed a doubt as to whether its position was in accordance with the Treaty of 1881. Señor Barros Arana opposed the revision which the Argentine Expert proposed, but that difficulty was overcome by the Protocol of May 1, 1893, which settled the matter, as has already been said.

The revision of the San Francisco landmark having been decided, the Experts agreed on January 1, 1894, on the Instructions to be given to their assistants.* The two Sub-Commissions began their work, the Chilean, on its

* Instructions given to the joint revising exploring party of the landmarks of San Francisco: (Record of the meeting held by the Experts at Santiago, on January 1, 1894).

"Whereas it was stated in Article 8 of the Protocol of May 1, 1893, that the Argentine Expert having manifested that, in order to sign, with full knowledge of the matter, the Record of April 15, 1892, by which a mixed Chilean and Argentine Commission fixed on the ground the point of departure of the demarcation of boundaries in the Cordillera de los Andes, he (the said Expert) considered it indispensable to make a fresh reconnaissance of the locality; and whereas it had been decided by the said Protocol that a revision be made of what had been done, and that, in the event of error being found, the landmark should be transferred to the point in which it should have been fixed, according to the terms of the Boundary Treaty; the Experts agreed to fulfil this decision in the following manner: The Argentine Expert will communicate to the surveying party under him his Instructions concerning the same, which Instructions must also be signed by the Chilean

part, restricting itself to give its assistance to the Argentine Sub-Commission. Both recognised that the landmark had been placed in the Pass of San Francisco, whereupon the Chilian Sub-Commission declared the labours of revision to be finished ; which proceeding was, however, contrary to the letter and spirit of Article 8 of the Protocol of 1893, which provides that if the boundary mark has not been located in accordance with the Treaties it should be transferred to a region fulfilling the necessary requirements. The Argentine Sub-Commission maintained that the boundary mark, though in fact it had been planted in the Portezuelo of San Francisco, did not answer to the conditions stipulated in the Agreements, to serve as a mark of the international boundary line, and proposed to extend their investigations towards the west as far as the chain of Maricunga—a step which the Chilian Sub-Commission considered quite unnecessary. However, the Argentine Commission went on with the work, which did not reach completion, first, on account of the serious illness of the Argentine chief, and, secondly, because the advanced season did not permit it.

In view of this, the Argentine Expert pointed out to his colleague the necessity of continuing the work in the following season—that of 1895—but Señor Barros Arana *declined the proposal, and consequently the operations were carried on by the Argentine Sub-Commission alone.* The result of these labours was that the Argentine Expert, Señor Quirno Costa, proposed to the Chilian Expert, Señor Barros Arana, to transfer the landmark to the Pass of Santa Rosa,

Expert, in order that the Chilian surveying party may co-operate, as far as may be considered necessary, to expedite the undertaking. The chief assistant of the Argentine party, and the chief assistant of the Chilian party will present to the respective Experts a statement setting forth the labours and the result of the revision, explaining all the points in which they agree or disagree, with their reasons for so doing.

“The Experts will decide whether the landmark now placed must be removed or not.

“After the labours of the revision are completed, the mixed surveying party will proceed to the work of demarcation towards the south.”

The Instructions of the Argentine Expert for his Surveying Commission were as follows:—

“Explorations will be carried on, for the purpose of checking and verification, in the regions where the provisional landmarks have been placed, and in the parts of the Cordillera where it is considered desirable or necessary in order to determine the starting point of the demarcation, in conformity with the Boundary Treaty, and in conformity with the Protocol of May 1 of the current year.

“The plans and information obtained will be brought to the knowledge of the Experts by the mixed surveying parties, in order that the said Experts may decide with regard to giving effect to the last part of Article 8 of the Protocol of 1893.

“As soon as the explorations have been completed, in order to determine definitely the point, as stipulated in the said Article of the Protocol, the mixed exploring party will be converted into a demarcating party, continuing the demarcation towards the south, and observing in their proceedings the rules laid down in the Instructions given for the demarcation in the Cordillera, previously inserted.”

in the chain of Maricunga, a proposal which was met by the Chilean Expert saying that some consideration was necessary before deciding to accept or decline it.

What clearer evidence than this could be forthcoming to show that the surveys mentioned by the Chilean Expert, as having been made by his assistants, were not so convincing as not to need verification before considering the proposal of the Argentine Expert? Señor Barros Arana replied on that occasion to Señor Quirno Costa :—

“That, in order to be enabled to take into consideration the surveys handed to him and the points submitted by his colleague, he required to have carried out, by one or more of his assistants, a fresh examination of the ground gone over by the Argentine Sub-Commission, and that the results of this examination would place him in a position to enter upon the definitive settlement of the points in dispute, hoping that an *amicable* and *clear* solution would be arrived at, which would prove of advantage to the interests of both countries, and would *conclude* once for all a vexatious incident in a delimitation which it was his desire should be carried out without interruption.”

This took place on October 23, 1895. Then there supervened the Agreement of April 17, 1896, by which the operations of the demarcation of the dividing line in the Cordillera de los Andes in conformity with the terms of the Treaty of 1881 and the Protocol of 1893 were extended to the parallel of 23°.

When discussing the San Francisco landmark, Señor Barros Arana, among the several notes he wrote, addressed one to his colleague Señor Quirno Costa, on September 27, 1894, maintaining that the landmark had been rightly placed, in support of which he alleged some considerations concerning the Treaties, reverting to his theory of the continental divide.

Señor Quirno Costa, who had been the prime mover of the proceedings of the Agreement of 1893, could not conceal his surprise at the persistence of the Chilean Expert in reviving a question which was already definitely studied and settled. Consequently, in courteous but energetic terms, he wrote the note of December 14, in which he reminded Señor Barros Arana of some of the antecedents and gave a precise interpretation of the Protocol in the framing of which he had shared. The importance and official character of the document justifies its being quoted, notwithstanding its length. Señor Quirno Costa said :—

“You understand by main chain of the Cordillera the uninterrupted line of crests which divide the waters, and which forms the separation of the basins or hydrographie

regions which are tributaries to the Atlantic on the east and to the Pacific on the west, and you state that when issuing the Instructions given in last January, you recorded same.

"On my part, I must remind you that I rejected said theory, manifesting to you that I did not consider at that time I ought to point out the excesses and deficiencies of that definition, adding that the Experts were not called upon to interpret the international Agreements, but to apply them, because we were simple demarcators, and on the other hand, no case had arisen which could cause a divergence.

"The Argentine Republic never accepted the continental divide as the boundary with Chile, and when negotiating the bases of the Treaty of 1881, you, as Minister, proposed it to Señor Bernardo de Yrigoyen; the latter, as Minister for Foreign Affairs, rejected it, and Article 1 of the Treaty of 1881 was written as it now stands.

"There would be no reason for the existence of said Article, which provides that the boundary between Chile and the Argentine Republic, from north to south as far as parallel 52°, is the Cordillera de los Andes, and that the line shall run in that extent along the most elevated crests of said Cordillera that may divide the waters, and shall pass between the slopes which descend one side and the other, because it would have sufficed to the framers of the Treaty, to establish that the boundary between the two countries was the continental divide, which you now uphold against the express text of the Treaties and of the antecedents which have served to form them.

"You cannot mention a single geographer or scientist who applies the continental divide as an absolute rule in the delimitation of countries separated by mountains, and still less when the text of a Treaty provides that the line shall run along the most elevated crests that may divide the waters, passing between the slopes (*vertientes*) that you, as well as all geographers, define with the name of sides or flanks of the mountains, and which can never be proved to be synonymous with the origins or sources of rivers; and when another explanatory and interpretative Treaty provides that said most elevated crests be sought for in the main chain of the Cordillera, which, without other interruptions than those in short spaces, caused by accidents of the same mountains, forms the real body of the mountain system. Consequently it is in this main chain that we must trace the line, whether the continental divide be always situated in same or not, and it may often be situated outside of it, as foreseen in the Protocol when the latter provides that *parts of rivers* may belong to either country, and as happens in the Andes and in other cordilleras.

"With the object of opposing the text of the Treaty of May 1, 1893, referring to the words 'parts of rivers,' you say: 'Doubts might possibly have occurred regarding those streams, portions of rivers or incomplete rivers which do not reach the sea—a very common circumstance in both countries, above all in the northern regions, where interrupted watercourses are frequently to be met with, on account of the evaporation or filtration, which prevents them from filling the hollows to be found in their course. Fortunately all doubts have been set aside by Article 1 of the Protocol of May 1, 1893, which makes this point still clearer.'

"Allow me to express my great surprise at the restriction placed by you on one of the most conclusive stipulations of the Protocol of May 1, 1893, and which was the motive of lengthy and laborious conferences which caused your retirement when said international Agreement was being signed.

"The conferences began in March 1893, in the Department of Foreign Affairs of Chile, you and my predecessor Señor Virasoro assisting as Experts, and Don Isidoro Errázuriz, Minister of the Department, and I, as Argentine Plenipotentiary, being also present.

"When treating of the cutting of rivers by the boundary line, you stated that this should be left, to be included in the Instructions which the Experts were to give to the demarking Sub-Commissions, as it was already understood; I on my part insisting that with regard to this matter, we ought to sign a declaration to that effect.

"During the course of the negotiation we insisted on establishing said cutting of rivers, and you refused to allow it to be inserted in the Protocol; and as the Argentine Expert and myself refused to continue discussing the affair, declaring that we considered said explanation to be indispensable, you did not return to the conferences, thus obliging your colleague, Señor Virasoro, to retire likewise. The negotiation continued between Señor Errázuriz and myself, and the declaration anent the cutting of rivers, established by Article 1, was included without limitation or restriction of any kind.

"How can you, therefore, reopen a discussion on a point which is already solved by means of a solemn Treaty, sanctioned by the Congresses of the two interested nations?

"Besides, the cutting of rivers is implicitly established in the Treaty of 1881, and your persistence (in all the acts of execution of said Treaty) in leading us to the continental divide as an absolute rule was another of the chief causes of the negotiation of 1893. In this latter Treaty it was again eliminated as an absolute rule by the fact of said cutting of rivers being established, and by giving to Chile the channels of the Pacific in the vicinity of parallel 52°, it being likewise agreed that the coast of those channels was to be amicably determined by both Governments. *If the continental divide were the general rule, you would not have consented to all this, nor would the Chilean Government have approved it.*

"*This stipulation regarding the southern channels is an express abandonment of the alleged and disturbing continental dicortium aquarum, which from your point of view never appears to have been eliminated as an invariable rule.* In effect, in parallel of lat. 52°, the divide between the Atlantic and Pacific basins is situated in the sources of the river Gallegos, which some call 'Plains of Diana' (Planicies de Diana).

"Could you maintain that in these plains is situated the main chain of the Cordillera, mentioned by the Protocol, it being a fact that said main chain is to be found on that parallel but to the west of those plains and after crossing the channels of the Pacific—channels which a lofty policy of sincere friendship toward Chile on the part of my Government caused them to declare as belonging to that Republic?

"The great Cordillera stretches longitudinally from north to south, and, taking into account all its aggregates, its system spreads out from east to west in a great extent. The Treaty of 1881 enclosed the frontier line within the Cordillera, providing that the line shall run along its most elevated crests that may divide the waters, and adding that it shall pass between the slopes which descend one side and the other.

"To what watershed does the Treaty refer?

"The words of the Treaty being 'the most elevated crests that may divide the waters,' they must be taken to mean those crests which form a chain, and the Protocol of May 1 has defined this point, since it locates them in the main chain of the Cordillera, which forms, as

I have said, a sort of ridge more or less flattened, stretching in a given trend. They are crests presenting two lateral opposing sides, which descending constitute the slopes down which flow the fluvial waters or those produced by the melting of the snow on the summits.

“There are other crests which deviate from the principal chain and are situated on spurs, tablelands, or in lateral valleys, and which are cone-shaped. These crests may have watersheds, but the waters will flow not only on one side and the other as provided by Article 1 of the Treaty of 1881, but on all sides. These, therefore, are not the crests which we are to seek, but the former, where the slopes on one side and the other, i.e. east and west, are exclusively to be found. For this reason all crests not bearing the separation of these two general slopes of the Cordillera to which said Treaty and the Protocol of May 1 refer, must be rejected.

“Thus, when we find that the line cuts a river or mere stream, we must not, nor can we, depart from the prolongation of the line on the crests, because it is on the latter that we must seek said line.

“I will not enlarge on this point, as you have only mentioned divergences which, although I consider them fundamental matters, come more within the resort of the Governments than within ours, we being mere demarcators, arbitrators only when treating of valleys formed by the bifurcation of the Cordillera, and in which the watershed may not be apparent.

“The good faith of both countries being at stake, the powers which manage their affairs must honour their international engagements, and they will not permit the patriotic work of many years, and of diplomatic negotiations brought to a successful issue, to be frustrated in a day.”

The Chilian Expert did not reply to this note, thus acknowledging by his silence the truth of its contents. Consequently the said note proves that one of the primordial objects of the Agreement of 1893 was that of putting an end to the alleged and disturbing continental *divortium aquarum*; that this point was decided by means of a solemn Treaty, sanctioned by the Congresses of the two interested nations; that the cutting of rivers was exacted by the Argentine Representatives as a condition *sine qua non* for signing the Treaty; and that to reopen the discussion on this point is equivalent to disowning the Protocol of May 1, 1893, in one of its capital points.

In virtue of said Protocol the Argentine Government, pursuing an elevated policy which has always been the guiding rule of their international transactions, ceded to Chile the channels of parallel 52° in the vicinity of the Cordillera, in exchange for the correct interpretation of the Boundary Treaty of 1881, viz. that the boundary line on the main chain should be respected.

Meantime, the channels have been ceded and no one has ever had any doubt

about the frank declarations in the Treaties ; but, nevertheless, the general frontier line has not been fixed by common consent of the Experts owing to the impediments of the continental divide, persistently maintained by the Chilean Expert.

3. THE AGREEMENT OF 1895.

The mixed Sub-Commissions were still continuing their works of delimitation in 1895, when a further difficulty arose to disturb public opinion in the two countries, causing a further diplomatic intervention.

Señor Barros Arana, who had not replied to the note of the Argentine Expert of December 14, prepared a long document in which he, though not contradicting the concrete facts which Señor Quirno Costa had stated, enters into confused hydrographic considerations—quoting the opinions of authors who speak of the division of waters, which he interprets as if they referred to the continental or interoceanic divide. The document did not fulfil any official object as was to be supposed in the case of a functionary invested with a public character and to whom was entrusted a delicate mission. It was intended for the press ; it was a newspaper article which appeared in *El Ferrocarril* of Santiago. The Argentine Government could not remain passive in view of such a publication. It was Señor Barros Arana, the Expert to the Chilean Republic, who in opposition to the clauses of the settlements, signed by his Government, defended the line of the separation of the hydrographic basins. It might be assumed that by virtue of the office which he was holding, his declarations had an object.

The discussions of the Experts amongst themselves might continue without any necessity for the direct intervention of the Government so long as the work of demarcation was going on, but when the Chilean Expert unravelled to the public his doctrines in opposition to the Treaties, it was thought prudent to inquire to what extent his Government shared his opinions.

The Minister for Foreign Affairs of the Argentine Republic instructed the Minister in Santiago, by telegram of April 6, 1895, to state to the Chilean Government as follows :—

“ The Argentine Government has heard with surprise of the publication made by Señor Barros Arana, which, although not of an official character, at any rate prematurely compromises the opinions of a public functionary, by giving expression to them inopportunately, at the same time that it contributes to excite among the two peoples that

feeling which it is desirable to tranquillise, in the interest of the success of the demarcation proceedings which are being conducted, and of the maintenance of harmony among the said peoples, which it is unadvisable to disturb."

This was done, and the Argentine Minister, by a telegram of April 8, stated that he had received a satisfactory answer, as follows :—

"That the Chilean Government were only aware of Señor Barros Arana's paper after it was published, and that consequently it possessed no official character."

The disclaimer was, therefore, as categoric as diplomatic usages required, but the labours of the Experts, replete with obstacles, could not continue their regular course.

The Argentine Government, however, was anxious to have them carried to completion. The boundary difficulties were causing a constant state of uncertainty which it was indispensable to avoid. With this object in view they thought that the most practical course was to hasten the surveys by the Commissions so that they might, in as short a time as possible, be in a position to determine the course of the entire frontier line with actual knowledge of the ground and of its most important features. If there should be any disagreements it was thought that the most advisable course would be to state them without entering on fruitless debates, and continue the demarcation wherever agreement existed. By this procedure, it was hoped to succeed in planting the landmarks in those places in regard to which the Experts' opinions were in agreement, and on the other hand, it was deemed certain that after precluding theoretical dissertations and the discussions as to detail in regard to each landmark, the Experts in the first place, and the Governments afterwards, might pronounce upon all the disputes that should arise by considering them as a whole with full knowledge of them.

Although the adoption of these rules was within the province of the Experts, the Argentine Government thought that it would be more practical if they were submitted to the decision of the Ministers. This explains how it is that the Agreement of September 6, 1895, was found amongst the international Conventions which were presented to the Government of Her Britannic Majesty.

Subsequent understandings of the Experts having rendered unnecessary the application of the clauses of the Agreement arrived at on September 6, 1895, it would be out of place to refer to the matter at any length.

4. QUESTIONS WHICH BROUGHT ABOUT THE AGREEMENT OF 1896.

In spite of the manifold Agreements, difficulties in reference to the tracing of the boundary line continued to crop up, engaging the attention of the Experts and the Governments, and compelling them to think about the adoption of a mode of settlement which would dissipate the fear of a conflict, which the continuation of the debates might perchance bring about, but of which national welfare counselled the avoidance.

On the closing of the year 1895 and the commencement of 1896, the discussions bore upon four main points, viz.:—

1. Atacama;
2. The Arbitration;
3. The channels in lat. 52° close to the Cordillera;
4. The San Francisco boundary mark.

The Agreement of April 17, 1896, applied to them all, and its clauses are perfectly intelligible by a short explanation of the causes which brought it about.

The first point, concerning the Puna de Atacama, arose, in a certain extent, from the Argentine-Bolivian negotiations of 1889 to 1893. The name of Puna de Atacama was generally given to the high plateau which is enclosed on the north by the parallel of lat. 23° ; on the west, by the Cordillera de los Andes; and on the east by the Cordillera Real de Bolivia.

This territory, interposed between the eastern border of Chile and the recognised western boundary of the Argentine Republic, had been persistently in dispute between the Argentine Republic and Bolivia, without Chile having taken any part in these disputes. By the Argentine-Bolivian Treaty of 1889, modified in 1893, Bolivia renounced the high plateau in favour of Argentina, and the latter, therefore, bordered Chile as far as lat. 23° .

The Argentine-Chilian Conventions of 1881 and 1893 did not define the northern point at which the agreed boundaries were to commence. They only established the north to south boundary as far as lat. 52° S. It was evident that, at whatever part north of lat. 52° , in which Chile and the Argentine Republic were neighbours, they were separated by the Cordillera de los Andes; but it was also evident that, until the dispute was settled with Bolivia, the Argentine Republic could not consider the Puna as being an integral part of her territory.

When once the ownership of the high plateau had been recognised, it was considered proper to set forth in a Convention that the Argentine-Chilian boundary was to be prolonged to the north. Chile maintained that, in consequence of the war it had waged against Bolivia and Perú, she had militarily occupied the territory of the Puna, and, consequently, it belonged to her. In this way, the old dispute was intensified by a new incident.

The second point, concerning the arbitration, did not relate to the arbitration itself, since both nations accepted it, but only as to its scope, that is to say, to the competency of the umpire. In Chile it was suggested that the tracing of the line should be submitted to the judgment of third parties having full powers. The Argentine Republic considered that it had been stipulated in the Treaties what the theoretical rules of the boundary were, and declared as being under her sovereignty all the lands and all the waters lying on the east of the main chain of the Andes, i.e. of the summit of the Cordillera. From these premises she concluded that, whether the Cordillera was or was not the dividing boundary, was not a point to be submitted to arbitration, but only the different criterion held by the Experts in appreciating the geographical features when localising boundary marks. The demarcators should commence to strictly apply the Treaties, and should they disagree in the location of the boundary marks in the Cordillera de los Andes, then, and then only, could appeal be made to an arbitrator to decide as to which of those landmarks were rightly placed according to the Conventions. The Argentine Republic sought for arbitration, desired to have recourse thereto in the fullest extent permitted by the Treaties, but on condition that the Treaties were respected in every particular. She thus avoided an award based on abstract considerations which might compromise the full dominion and sovereignty rendered sacred by the Covenants.

The third point, concerning the channels in lat. 52°, had originated through the desire manifested by Chile for determining the extent of the coasts which were to be ceded to her, according to Article 2 of the Protocol of 1893. The Argentine Government opposed every sort of declaration with respect thereto, so long as the zones in the neighbourhood of the channels were not surveyed for the purpose of ascertaining, in a positive manner, the importance of the cession she would make.

The fourth point, concerning the San Francisco landmark, was caused by an erroneous interpretation by Señor Barros Arana of Article 8 of the Protocol of 1893. It will be recollected that after the location of the provisional landmark

the Argentine Expert considered that it should not be approved. He thought that San Francisco was not in the Cordillera. In consequence the Governments agreed that a revision be made of what had been done, and that in the event of errors being found, the landmark shall be transferred to the point in which it should have been fixed according to the terms of the Boundary Treaty.

The Argentine Commissions, as has been stated, studied the ground and acquired thereon the conviction that San Francisco did not form a part of the Cordillera. This was made known to Señor Barros Arana, but he remarked that he had always thought that, in agreeing to the revision of the landmark, "it was only a question of knowing if it was or was not found in the San Francisco Pass." That is to say, although the Protocol speaks of the "event of errors being found," and that in such event, "the landmark shall be transferred to the point in which it should have been fixed according to the terms of the Boundary Treaty," all this, according to the Chilean Expert, only meant that the sole thing to be verified was as to whether the mark had been placed in San Francisco or in some other part.

The Argentine Government, which had sought to be sufficiently explicit, and, to that end, had modified the clause relative thereto in the primitive project, adding the phrases in which the removal was ordered, now encountered a fresh obstacle as, according to the Chilean Expert, such removal was not ordered if the landmark were in San Francisco—a fact which no one had ever questioned.

The solution of the four points occupied the attention of the Governments for some months. At the commencement, a direct arrangement between the Experts was attempted. A basis of solution was even agreed to, and the Argentine Expert, Señor Quirno Costa, personally took it to Buenos Aires so as to give the information which might be required. The project was accepted in general, but as some modifications were introduced therein, the Chilean Expert did not consider the negotiations ought to proceed.

Later on, Señor Morla Vicuña, Chilean Plenipotentiary in Montevideo, was accredited with a confidential mission in Buenos Aires, and presented to the Argentine Government a Draft, which they rejected, among other reasons, because it was sought to obtain a considerable extension of territory, under the guise of the coasts of the channels.

The Chilean Minister for Foreign Affairs, Señor Guerrero, proposed another project of agreement, which was also considered by the Argentine

Government. Thereupon Señor Quirno Costa and Señor Guerrero concluded the Agreement of April 17, 1896, the capital importance of which cannot be disregarded, as it establishes the basis of the present Arbitration ; however, in spite of this, the Chilian Representative has taken no notice of it in the Statement he read before this Tribunal.

It is necessary to observe in passing, that during the negotiations for the settlement, reference was frequently made to “the Cordillera de los Andes,” “the high crests,” “the main chain,” but no attempt was ever made to set forth any clause which might have connection with the continental divide. Moreover, in the text of the Agreement, some of the orographic ideas were repeated, but no mention was made of the waters, of the rivers, of the hydrographic basins, or of the interoceanic divide.

6. SOLUTIONS AGREED UPON IN THE AGREEMENT OF 1896.

The Agreement of April 17, 1896, was entered into, according to the preamble, with the desire “of facilitating the loyal execution of the Treaties in force which fix an immovable boundary between both countries, of re-establishing confidence in peace, and of avoiding all cause of conflict.”

The word “immovable,” applied to the boundary, is significant, the more so as it is not the first time that it appears in the Argentine-Chilian negotiations. Article 6 of the Treaty of 1881 laid down that—

“Any question which might unfortunately arise between the two countries, whether it be on account of this transaction, or owing to any other cause, shall be submitted to the decision of a friendly Power, the boundary established in the present arrangement to remain at all events ‘*immovable*’ between the two Republics.”

It proves that the desire was for a fixed boundary, permanent as the traditional boundary is, and not one susceptible of being easily altered.

The basis of the “immovable boundary” being established, the Agreement of 1896 adjusted the four points which gave rise to it.

The first point was decided by Article 1, in the following form :—

“The operations of the demarcation of the boundary between the Argentine Republic and the Republic of Chile, which are being carried out conformably with the Treaty of 1881 and Protocol of 1893, shall extend *in the Cordillera de los Andes*, as far as parallel

23° S., the boundary line between this parallel and that of 26° 52' 45" S. to be traced with the concurrence of both Governments in the operation, and of the Government of Bolivia, which shall be invited to that effect."

The operations of the demarcation of the boundary were not subjected to the general idea of the interoceanic divide, no reference being made thereto in this clause. The main idea, dominating the whole of it, is the orographic idea. To the south of lat. 26° 52' 45" the Experts were to work, in the Cordillera, for the purpose of fixing the boundary therein; to the north of lat. 26° 52' 45" they were to proceed in like manner, observing the common ownership of the Cordillera de los Andes, which would be divided between both border States, so that to each one of them would belong the slope facing towards it up to the culminating ridge.

The second point was solved in Article 2 of the Agreement in these terms :—

"Should differences arise between the Experts when fixing in the Cordillera de los Andes the boundary marks south of parallel 26° 52' 45" S., and in case they could not be amicably settled by joint accord of both Governments, they shall be submitted to the decision of the Government of Her Britannic Majesty, which the contracting parties from this moment appoint in the character of Arbitrator entrusted with the strict application in such cases of the provisions of the aforesaid Treaty and Protocol, after the ground has been examined by a Commission appointed by the Arbitrator."

The following undoubted conclusions arise from this principle :—

(a) The boundary marks have to be located in the Cordillera de los Andes. No hydrographic idea whatever is intimated; on the contrary, the frontier was to be determined by the mountains.

(b) The differences between the Experts could only arise in fixing the boundary marks in the Cordillera de los Andes. Should they be fixed outside thereof, they would be of no value whatever, as they would openly violate the Treaties, and it would not be possible to take them into consideration on any pretext.

(c) As soon as the differences between the Experts arise, the Governments are called upon to intervene for the purpose of arranging them.

(d) The Arbitrator is appointed in order to consider the differences between the Experts in fixing the boundary marks in the Cordillera de los Andes.

(e) The Arbitrator has to strictly apply the provisions of the Treaties, after the survey of the ground by the Commission to be appointed.

During the negotiations which preceded this Agreement, and in consequence of the indications contained in its second clause, the opportunity was presented to one of the Chilian Representatives, Señor Carlos Morla Vicuña, especially accredited to the Argentine Government for the settlement of the existing difficulties, to interpret the spirit of the Treaties in force.

In a project he submitted to the study of the Minister for Foreign Affairs, Señor Alcorta, and which the latter rejected, because, among other things, it extended the coasts of the channels in lat. 52° in an unreasonable manner, Señor Morla Vicuña had used these words :—

“The phrase in Article 1 of the Treaty of July 23, 1881 : ‘The frontier line shall run in that extent along the most elevated crests that may divide the waters, and shall pass between the slopes which descend one side and the other’; the clause of Article 1 of the Protocol of May 1, 1893 : ‘All lands and all waters, to wit, lakes, lagoons, rivers and parts of rivers, streams, slopes situated to the east of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, shall be held in perpetuity to be the property and under the absolute dominion of the Argentine Republic; and all lands and all waters, to wit, lakes, lagoons, rivers and parts of rivers, streams, slopes situated to the west of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, to be the property and under the absolute dominion of Chile’; and the explanation of Article 2 of the same Protocol of 1893 : ‘According to the spirit of the Boundary Treaty, the Argentine Republic retains her dominion and sovereignty over all the territory that extends from the east of the principal chain of the Andes to the coast of the Atlantic, just as the Republic of Chile over the western territory to the coasts of the Pacific,’—it is understood that they designate as frontier line between both countries the line or the series of points of intersection of the two eastern and western inclined planes which form the backbone or continuous summit of the continent from the parallel of the Tres Cruces to the parallel of the Tres Montes.”

Although Señor Morla Vicuña's project was totally rejected, the Argentine Minister observed to the Chilian Representative that the new expressions he had thought of would not end the difficulties. If, without the Treaty of 1881 making any reference to rivers, either as to their origins, their courses, or their outlets, it had been contended that the line of frontiers should follow the springs of the watercourses for the purpose of declaring as entirely Chilian those which flow to the Pacific, and entirely Argentine those which go to the Atlantic, there was the fear that, in mentioning the backbone of the Continent, the continental divide would be insisted upon. The formula, although purposely intended to remove all hydrographic interpretation, presented in the term *continent* a positive danger. Señor Morla Vicuña doubtless perceived the necessity

for caution in the employment of new expressions, and rendered his thought clear by altering the last passage thus :—

“It is understood the line or series of points of intersection of the two eastern and western planes which form the backbone or continuous summit [instead of the continent which it previously said] * *within the Cordillera de los Andes.*”

The rejection of Señor Morla Vicuña's project did not deprive it of its value for the interpretation which he gave of the clauses of the Conventions. He understood that the line should run along the Cordillera in the intersection of the two eastern and western planes. He understood, in other terms, that the frontier should be constituted in the highest summits, as they form the ideal intersection of the slopes.

The third point was settled by Article 3. During the negotiations, the Chilean Ministers claimed for their country a very extensive portion of territory, even of greater extent than that which the Expert, Señor Barros Arana, had comprised within the line which Her Britannic Majesty's Government is requested to survey. One of them, Señor Morla Vicuña, spoke of a line from Tres Montes as far as Mount Aymond; the other, Señor Guerrero, wanted the demarcation along the meridian of long. 72° W. of Greenwich, from lat. 46° to lat. 52° . Such proposals could not be taken into consideration, and were not.

Only the following conclusion was reached, which the Agreement contains :—

“The Experts shall proceed to effect the examination of the ground in the region near parallel 52° S., dealt with in the latter part of Article 2 of the Protocol of 1893, and shall propose the boundary line which is to be adopted there, should the case arise which is foreseen in said stipulation. In the event of any difference as to the fixing of this line, that shall also be decided by the Arbitrator appointed in this Agreement.”

In addition to the stipulation in itself, it is important to notice the indirect, but none the less decisive, condemnation this clause conveys with reference to the interoceanic divide.

Article 2 of the Protocol of 1893 assumes that the frontier may penetrate into the Pacific waters, and it is, besides, evident that this hypothesis alone is admissible by following the orographic boundary, as no one could ever succeed in demonstrating that the line dividing the watercourses which run down towards

* The words in brackets are also of Señor Morla Vicuña.

the two oceans in opposite directions, could appear as though advancing only towards one.

The Argentine negotiator of the Protocol, in an official note already referred to, expressly stated that this was the meaning of the prescription. His assertion was not contradicted, and the Chilean Government, far from endeavouring to weaken the conclusions formed by him, repeated the opinion thus interpreted in a new Agreement, again admitting the possibility of the Cordillera—over which the frontier line runs—penetrating into the Pacific waters near parallel 52°.

The fourth point was decided by Article 5 of the Agreement of 1896.

The projects which preceded the Agreement also took the point into account. In the project formulated by the Experts, it is said among other clauses—

“The difficulties raised as to the San Francisco landmark are considered as terminated, and the Experts agree as a compromise *to transfer it to the Tres Cruces gap* by two of their assistants, one for each party.”

The one formulated by Señor Morla Vicuña stated that—

“The Argentine Republic and the Republic of Chile are separated from lat. 23° S. by the Cordillera de los Andes, along the line which, starting from Lineancaur, continues along the Tonal, the Pular, the Llullaillaco, to continue towards Tres Cruces *to where the San Francisco landmark shall be removed.*”

In the one formulated by Señor Guerrero, the San Francisco landmark is not mentioned, but, as a matter of fact, the question was cut short by the decision that—

“The eastern boundary of Chile, between lat. 23° and 27° S., shall be a line which, starting from the Lineancaur volcano, continues to the summit called Tres Cruces, passing along the following points: Tenar, or Tonal, Colachi, Hecar, Aguas Calientes, Miniñique, Capur, Pular, Pajonales, Socompa, Llullaillaco, Laguna Brava, Juncalito, Wheelwright and Tres Cruces.”

The projects of the Chilean Ministers, Morla Vicuña and Guerrero, answered a common objective: the recognition of the Puna de Atacama as pertaining to the Argentine Republic, in exchange for which a considerable extent of Patagonian territory should be ceded to Chile. The San Francisco landmark seemed in this way to be connected with the dispute about the Puna. The compromise would have resulted in a clear loss to Argentine interests. Chile lacked rights to the Puna, and to such an extent, that the demarcating

Commission, in which the United States Minister in Buenos Aires took part as umpire, assigned to the Argentine Republic no less than eleven parts out of twelve of the region to which claim had been made. Chile thus was giving up something which could not belong to her, and, in exchange, wanted to cross the Andes, and advance into the Argentine plains.

The compromise being repudiated, Chile objected to fix the spot to which the provisional San Francisco landmark should be removed, but did not deny that the Agreement would dissipate the doubts which Señor Barros Arana had manifested as to the scope of the 1893 Protocol. With this view it was agreed in 1896 that—

“Both Governments agree that the present location of the San Francisco boundary mark between parallels 26° and 27° S. shall not be considered as a basis or a binding antecedent for determining the delimitation of that region; the operations and the work therein effected at different times to be regarded as examinations for the definite fixing of the line, without debarring the Experts from realising others that they may think fit to direct.”

It is, therefore, useless to speak of the operations prior to the Agreement of 1896, of the mistakes made, of the conclusions reached; none of which is a basis or binding antecedent for determining the delimitation.

The Agreement comprises, besides what has been enunciated, various provisions: some tending to fix the rules for the arbitration proceedings; others, to accelerate the work of the Commissions on the ground, showing that it was the constant preoccupation of the Governments to ascribe capital importance to the geographical *data*.

CHAPTER XII.

Summary—1. PROCEEDINGS OF SEÑOR MORENO AS ARGENTINE EXPERT.

2. VIEWS OF THE ARGENTINE EXPERT REGARDING THE SURVEYING OF THE GROUND.

3. EVENTS LEADING UP TO THE RECORD OF MAY 1, 1897.

4. MEETING OF MAY 14, 1898.

5. THE WORK OF THE ARGENTINE AND CHILIAN BOUNDARY COMMISSIONS.

1. PROCEEDINGS OF SEÑOR MORENO AS ARGENTINE EXPERT.

THE Agreement of April 1896 having been sanctioned ; all the difficulties which had arisen for the marking out of the boundary line having been solved ; the possibility of any further discrepancy between the Experts having been reduced to the fixing of landmarks in the Cordillera de los Andes ; stipulations having been made that such discrepancies and the differences that might occur when demarcating the coast line on nearing the 52nd parallel were to be the only ones susceptible of arbitral jurisdiction,—it seemed that all obstacles for the definite marking out of the frontier had been put an end to, and that the operation could now proceed and be pushed on so as to quiet down the agitation and remove the uncertainties to which both countries had been subjected.

The Argentine Expert, Señor Quirno Costa, having resigned in July 1896, owing to his appointment as Minister of the Interior, Señor Dr. D. Francisco P. Moreno was chosen to represent the Argentine Republic as Expert.

The Argentine boundary line, in nearly the whole of the extent of the Cordillera, and mainly in the points and regions concerning which the divergences of opinion have arisen, has been projected by Señor Moreno. For this reason it is necessary to place before the Tribunal the opinions which he holds, and upon which he has acted.

Though Señor Moreno was acquainted with a considerable portion of the Andean mountains, since he entered into office he determined to carry out the survey of all the districts through which, according to the former Experts, the

boundary line should run. He sent his assistants over the ground in order to arrange the planting of boundary marks in those places where, according to existing Agreements, no uncertainty presented itself, and to make complete surveys of those districts where the line of demarcation did not appear clear to them, from lack of previous knowledge of the ground. These orders given, he at once proceeded to Santiago, where he arrived at the end of January 1897. Both Experts then met in order to consider the work of demarcation performed by their respective assistants during the previous season, and they approved without any difficulty those landmarks placed in sites which were in accordance with the conditions agreed upon in the Treaty of 1881 and the Protocol of 1893, and they proceeded to give instructions with regard to the operations which had to be effected between the parallels of lat. 23° and $26^{\circ} 52' 45''$ S., and also in the region near parallel 52° S. as stipulated in the Agreement of April 17, 1896.

The Instructions for the operations in the north were given on February 17 following,* but those for the south could not be given so soon, as the bases proposed by the two Experts for these did not agree.

The Argentine Expert based his Instructions on Article 2 of the Protocol of 1893, and Article 3 of the Agreement of 1896, whereas the Chilean Expert claimed that the boundary line in this region *should be subordinated to the continental divide, without reference to the Cordillera de los Andes*, and without taking into account the explicit terms of the above-mentioned Agreements. It was not until April 28 that the difficulty was overcome.†

On the same day the Experts discussed the approving of the demarcation in the region comprised between "Punta Dungeness," in the Magellan Straits,

* In the Record of February 17, 1897, it is said: "The assistants of the sixth Joint Sub-Commission will commence the operations of demarcation to which reference is made in the first clause of the Agreement of April 17 ultimo, following the Instructions imparted by the Experts to the Sub-Commissions of demarcation in the Cordillera de los Andes, under date of January 1, 1894, the labours extending in the zone referred to in the said clause, as far as any region which, in the opinion of the respective Experts, may contain the line of demarcation. The assistants of both nations, forming the sixth Joint Sub-Commission, will agree amongst themselves where they will have to meet to decide upon the means of carrying out their labours in conformity with the afore-mentioned Instructions."

† Instructions of April 28, 1897. "The assistants of the fifth Joint Sub-Commission will proceed to perform the surveys of the territory in the region near to lat. 52° S., referred to in the last part of the second Article of the Protocol of May 1, 1893, and in the third Article of the Agreement of April 17, 1896, comprising in the said surveys the orographic and hydrographic features which will be necessary in order that the Experts may propose to their respective Governments the line of demarcation which should be adopted, in the places in question, in conformity with existing Treaties."

and the intersection of parallel of lat. 52° S. with the 70th meridian of longitude west from Greenwich. The Argentine Expert stated upon this occasion that he would give his approval, as he had previously received the authorisation from his Government to do so, concerning the line of hills to which the second Article of the Treaty of 1881 referred. The Chilean Expert said that—

“the data previously existing with regard to the said zone, and corroborated by the details and explanations communicated by the chief of the fifth Chilean Sub-Commission in his Report of January 9, 1896, with which he sent the respective plan and records, sufficed him to approve of the line marked out by the said Sub-Commission between Punta Dungeness and the intersection of the parallel 52° of latitude with the meridian 70° of longitude west from Greenwich, *and that, in his opinion, this line corresponded to the correct interpretation of the Treaty of 1881.*”

This opinion must be borne in mind, since the line in the region referred to did not take into account the watercourses, nor the hydrographical basins, nor the continental divide, and nevertheless Señor Barros Arana states that in the tracing of it the correct interpretation of the Covenant was followed by his assistants.

Between February 17 and April 28, the Argentine Expert visited a part of the territory with which he was unacquainted, and where two of his surveying parties were engaged, with the object of expediting their labours and to gain a personal knowledge of the true boundary line. He had also exchanged notes with Señor Barros Arana, in which the latter made complaints concerning delays on the part of the Argentine assistants, and insisted that the rules for the demarcation, which he claimed to be established in the Treaties and Protocols, were so clear that there should be no delay in drawing up the plans at once.

These rules, which, according to Señor Barros Arana, were based upon the *divortium aquarum* of the continent, could not be accepted by the Argentine Expert, since he would not depart in the slightest degree from the main chain of the Cordillera when fixing the boundary line. He, therefore, considered it necessary to acquaint his colleague, officially, with the view he took of his duties as a demarcator.

2. VIEWS OF THE ARGENTINE EXPERT REGARDING THE SURVEYING OF THE GROUND.

The demarcation of any international frontier without a previous knowledge of the territory is, to say the least, an impossibility; as regards the Argentine-Chilian boundary, that previous knowledge has been expressly determined by the Agreements. In connection with this subject, Señor Moreno wrote to Señor Barros Arana on April 21, 1897, as follows :—

“You tell me that our rules of demarcation as established in the Treaties and Protocols are so simple that not a single instance has arisen in which the chiefs of the Chilian Sub-Commissions have hesitated to make their proposals for the location of boundary marks, adding that, without it being your desire to object, in the slightest degree, to the right of the Argentine Sub-Commissions seeking to extend their studies and surveys of the Cordillera, in the way they may consider suitable, you also cannot refrain from calling my attention to the fact *that these studies, however interesting they may be from a geographical point of view, as conducive to obtaining with greater precision the altitude or position of the mountains or mountain chains which exist in the Cordillera, do not contribute in any way to throw light on the problem which the joint Boundary Sub-Commissions are called upon to solve in each instance, that is to say, the actual determination of the points of the frontier.*

“Article 1 of the Treaty of 1881, and Articles 1 and 2 of the Protocol of 1893, interpreting and explanatory of that International Agreement, require that we are to seek and trace the divisional line between the Argentine and Chilian Republics along the line of the most elevated crests of the Cordillera that may divide the waters, so that all lands and all waters, to wit, lakes, lagoons, rivers and parts of rivers, streams, slopes situated to the east of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, shall be held in perpetuity to be the property and under the absolute dominion of the Argentine Republic; and all lands and all waters, to wit, lakes, lagoons, rivers and parts of rivers, streams, slopes situated to the west of the line of the most elevated crests of the Cordillera de los Andes that may divide the waters, to be the property and under the absolute dominion of Chile, the Republic of Chile retaining her dominion and sovereignty over all the territory that extends from the west of the main chain of the Andes to the coasts of the Pacific, just as the Argentine Republic over the eastern territory to the coasts of the Atlantic. Article 6 of the Protocol of 1893 disposes that the Experts, or in their stead the Commissions of assistant engineers who act under the instructions given them by the former, shall seek on the ground the boundary line; and Article 7, that the Experts shall direct the Commissions of assistant engineers to collect all the necessary data to design on paper, of joint accord, and with all possible accuracy, the boundary line as they may demark it on the ground. The actual demarcators, therefore, are the Experts, the assistants only acting under their instructions (Additional Convention of August 20, 1888).

"An Expert cannot allow that the surveys which he may consider necessary for the carrying out of the provisions of the Treaties should be restricted, because he must possess full knowledge of the ground in order to seek the boundary line, according to his judgment, and must, therefore, not be restrained in the operations he may undertake, if they have no other object than the one indicated. The Experts have given, in joint accord, instructions for the demarcation, but each of them may, without departing from the general plan of the work, order their assistants to obtain the elements he may require in order to estimate the conditions of the ground, when he is unable, personally, to carry out the demarcation of the frontier line thereon.

"The Protocol of 1893 says that the maps made by the assistants may contain other geographical accidents which, without being actually necessary in the demarcation of boundaries, may be easily indicated in the places as signs of location, and that 'the Experts in the Instructions given to their assistant engineers shall point out such facts of a geographical character as it may be useful to collect, provided that this does not interrupt nor delay the demarcation of boundaries, which is the main object of the Commission of Experts, and upon which speedy and amicable operation both Governments are intent'; but these terms do not diminish the faculties of the Experts, nor prohibit their acquiring the perfect conviction that the boundary line shall be traced in accordance with the provisions of the Treaties. To act otherwise would be to manifest ignorance of the powers which attach to their office. Far from retarding the work of demarcation, by proceeding with full knowledge of the ground, I believe the Experts will avoid differences that might otherwise arise. When once the region where the boundaries are to be established has been properly surveyed, this operation will be carried out without any inconvenience whatever, and without that loss of time I am as anxious to avoid as yourself, in order to fulfil the stipulations of the Treaties."

3. EVENTS LEADING UP TO THE RECORD OF MAY 1, 1897.

In consequence of the discussions about the survey of the ground, the relations between the Experts once more became strained. If the territory had been previously surveyed by the Chilean Expert, he would have necessarily arrived at the conclusion that his theories with regard to the international frontier were inadmissible, for it is not possible to introduce modifications by a simple effort of human will, in so colossal a natural feature as "*the Cordillera de los Andes*."

Unless this survey took place, landmarks might be incorrectly placed through precipitancy—such as that of the Paso de San Francisco—thus adding further complications to those which naturally occur when territorial rights are at stake.

The Argentine Expert, fully realising his great responsibility and the serious

danger that might ensue if he yielded to the pretensions of his colleague, projected a procedure by means of which, in his opinion, the completion of the establishing of the boundary line might be rapidly brought about, which was much to be desired by both countries concerned.

The differences of opinion between the Experts occasioned a difficult situation between both countries, and it was necessary to make every effort to remove as soon as possible this anxiety. The Argentine Expert, however, although fully alive to this necessity, could not see his way to expedite the demarcation, unless the means of procedure were altered. It was not possible for him to accept or propose landmarks unless he knew beforehand whether the points selected really corresponded with the stipulated limits in the Cordillera de los Andes. Unless the territory containing these limits were previously surveyed, he would be obliged to delay his reply to the proposals which were made to him, and to which he would never consent, unless he were fully convinced that in those proposals reference was being made to points of the frontier really agreed upon.

After a while, the Chilean Expert, owing to instructions given by the President of Chile, accepted the procedure indicated by the Argentine Expert, according to whom, in another year, both parties would be in a position to determine upon the general divisional line throughout the whole length of the frontier.

This fresh intervention of the Government of Chile gave rise to the Agreement of May 1, 1897, the object of which was to expedite the labours of demarcation. The two Experts agreed to the clauses inserted in this document "after exchanging views regarding the means of hastening and giving impulse to the work of demarcation, with the view of being enabled to decide on the general line at the end of the next season of operations." With this purpose, three Sub-Commissions of assistants were appointed, who had to perform their task in the Cordillera de los Andes between lat. 41° and $49^{\circ} 30'$ approx.

On examining this Record it is easy to perceive that even in its smallest details the orographic idea is always uppermost. Señor Moreno would not have suffered, when drawing up the Record, any allusion to a hydrographic boundary. No mention was, therefore, made of the continental divide, or of waters, or of rivers: the Cordillera de los Andes was indeed spoken of, because it is the main feature on which everything else rests.

The Record of May 1 strengthens, besides, the persistent views of the

Argentine Republic to completely set aside abstract theories, in order to deal with the ground only. If the Chilian Expert did not personally go to examine the features which characterise the ground, at least it was indispensable that these features should be placed before him by means of accurate maps or plans. For this reason it was stated in Article 3 of the Record : " If during the operations, differences should arise between the respective assistants as to the location of the boundary line, the work of reconnaissance and survey of the ground shall be continued without interruption to the end of the season."

In order that their Expert might carry out his part of the Agreement, the Argentine Government placed at his disposal the assistance he thought necessary ; and, thus aided, Señor Moreno, on his part, vigorously pursued his fresh surveys, which comprised those of the whole of the boundary territory. Señor Barros Arana, on his side, pursued those which he considered most essential.

Señor Moreno realised that his duties as Expert made it incumbent upon him to become personally acquainted with the territory, and he therefore visited the regions with which he was not before familiar. Señor Barros Arana considered this personal acquaintance with the territory to be unnecessary. Señor Moreno, after having inspected some points near parallel lat. 52° S., and others on the western coast of Patagonia, proceeded to Santiago in January 1898, where he and Señor Barros Arana agreed upon some landmarks fixed by the Joint Sub-Commissions in the past season. After this, the Argentine Expert returned to Buenos Aires, in order to proceed from thence to inspect the eastern slope of the Cordillera and its environs as far as the very plains, where he knew that the continental *divortium aquarum* existed, and not where stated by Señor Barros Arana, who, while being aware that a considerable portion of it was altogether outside the Cordillera, still maintained that this divide was situated within the Cordillera.

4. MEETING OF MAY 14, 1898.

The Argentine Expert and Sub-Commissions set to work, during the favourable season of 1897-1898, with the firm purpose of obtaining the greatest number of geographical data that the shortness of the period permitted. Both Experts, by mutual agreement, were compelled to decide on the boundary line *after an exact survey of the ground had been made* ; and, moreover, it was necessary to bring to a conclusion the delayed demarcation.

Notwithstanding the constant energy that the Argentine Republic has always shown in accelerating the demarcation, the idea took root in Chile that all the delays were caused, on purpose, by the Argentine officials, and that only the Chilean Expert would be able to fulfil the clauses stipulated in the Record of May 1, though this Record, as has been said, was the expression of the views of Señor Moreno and not of Señor Barros Arana, who resisted it.

Señor Joaquín Walker Martínez, the Chilean Minister in Buenos Aires, complying with instructions from his Government, applied to the Argentine Minister for Foreign Affairs, Señor Alcorta, on March 3, 1898, in order to express to him the expediency "of bringing the work of the boundary demarcation to a speedy termination, the delay of which occasions doubts and suspicions, and these, alarming public opinion of both Republics, are the cause of the present arming and warlike preparations." Señor Alcorta, in reply, said that the Record of May 1, 1897, should be exactly and strictly complied with.

When forwarding this answer to his Government, Señor Walker Martínez said :—

"It is necessary, in consequence, to lay this promise of the Argentine Government before the Chilean Expert, and to tell him to use all the exertions necessary so that he, in his turn, may also present the general line of demarcation which corresponds to the truth, *according to the surveys made by the Chilean Commissions.*" *

This was done. The Chilean Government told Señor Barros Arana that he must hold himself in readiness to present the general line of demarcation which corresponds to the truth, *according to the surveys made by the Chilean Commissions.*

In acknowledging this communication, Señor Barros Arana said :—

"According to the note that Your Excellency sent me, the Chilean Minister in the Argentine Republic does not speak with certainty as to whether the undersigned Expert will be able to present a general line of demarcation in the course of the present season. Regarding this I beg to be allowed to repeat to Your Excellency all that I expressed in my note of August 5, 1897, already quoted: *the Chilean Expert believed himself to be prepared to decide as to a general boundary line, from the moment when he first assumed office.*" †

* Mensaje leído por S.E. el Presidente de la República en la apertura de las Sesiones ordinarias del Congreso Nacional y Memorias Ministeriales, 1898, Santiago, p. 8.

† Op. cit. p. 13. This assertion of the Chilean Expert is only understood bearing in mind the erroneous idea he upheld that the surveys were useless. In any other way the phrase would appear senseless, since he was compelled to acknowledge later on that the boundary region was to a large extent unknown to him.

Before receiving this written promise from their Expert, the Chilian Government tried to obtain another assurance that the Argentine Expert would hold himself in readiness to keep the Agreement of May 1. They in consequence gave instructions to their Representative in Buenos Aires as to getting a new official declaration on this matter. In the note addressed to him, the Chilian Minister for Foreign Affairs said :—

“If by any chance the Argentine Expert should not propose the promised line, it is indispensable that our Expert should propose it to him, so that in any case the result already spoken of should be attained. With the object of arranging matters in this sense, as was remarked to Your Excellency on another occasion, I have been conferring for some time past with the Expert Señor Barros Arana and with the Technical Chief Señor Bertrand, to whom I pointed out the designs of the Government, and I offered them all the elements that they considered necessary to complete the surveys of the territory.”

These notes, published in the Ministerial Reports, made the Chilian Government stand out in such a light as if they feared on one side that the Argentine Expert would not have accomplished the work to which he had bound himself, and on the other harboured the deep conviction that the Chilian Expert was in a position to present the line that corresponded to the truth according to the surveys of the Chilian Commissions.

In order to dispel the fears of the Chilian officials, the Argentine Minister for Foreign Affairs repeated the offered assurance on March 17. The explorations and consequent drawing of maps or plans once finished, the Expert Señor Moreno would proceed to put into execution the Agreement of May 1, 1897.

On May 8, 1898, Señor Moreno arrived once more at Santiago, having carried out his programme. The international situation had become more difficult, and it was necessary to settle, as soon as possible, the general line of the frontier, or at least those points that were to be submitted to the arbitrator. On the 14th of the said month of May a meeting took place, in the office of the President of Chile, and in the presence of the President himself and of his Minister for Foreign Affairs, and of the Argentine Minister Plenipotentiary, of the Experts who reported the progress of their respective labours. The Argentine Expert stated that his assistants had carried out the instructions they had received, and that in the following month of August he would return to Santiago with all the particulars necessary to determine upon the whole of the general line of the frontier in fulfilment of the Agreement he had signed on May 1 of the previous year. The Chilian Expert suggested

that this Agreement should be carried out forthwith, although he added, at the same time, that he was not yet provided with all the necessary particulars, especially with regard to the region comprised between the parallels lat. 47° and $49^{\circ} 30'$ S., about which his assistants had no information at all.

This proposition marked another endeavour to discuss the boundary line and the continental divide from a theoretical standpoint, for which purpose it would have been unnecessary to survey the territory. Both the President of Chile, and the Minister of Foreign Affairs pointed out to the Chilian Expert the difficulty he would meet with in projecting all the line as he proposed, as, not only had he, as he said, no knowledge of the region he indicated, but also the greater part of his assistants were still away on the ground. These observations prove once more that for the President of Chile, and his Minister of Foreign Affairs, it was indispensable to have a knowledge of the territory in order to decide upon the line, and that, therefore, they did not share the opinions of Señor Barros Arana. In fact, these appeared to consist in raising differences, not only with a view to submitting to arbitration abstract principles instead of divergences with regard to the location of the landmarks within limited areas, but with the intention of again endeavouring to modify the interpretation of the general fundamental rule which maintains that the *Cordillera de los Andes* is the boundary between the two nations.

Señor Barros Arana tried on this occasion to entirely subordinate the *Cordillera de los Andes*, mentioned in the Treaties, to the division of the continental waters, of which no mention is made in them ; but the Government of Chile always considered that the boundary with the Argentine Republic was to be traced along the Cordillera de los Andes, and that any dispute which might arise could proceed only from the Experts' disagreements with regard to the orography of the said Cordillera, and this was confirmed by the Record of September 22, 1898.

Señor Barros Arana, persisting in carrying out his views, proposed in the meeting that, in the places which had not been surveyed by the Chilian assistants, the general boundary line should be discussed from the Argentine plans only ; but this was not agreed to. He added that, in order to avoid disputes with regard to the definite tracing of the frontier, he proposed that, in case of any differences arising between the Experts in determining the general line, all the plans should be submitted to the Government of Her Britannic Majesty, so that, on this basis, the said Government should settle such disputes.

without having recourse to a survey of the territory, which would occupy much time and entail great expense.

The Argentine Expert answered that he could not assent to this proposition, because by acting thus the Experts would exceed their powers, as he had already said, and also because in case of arbitration the previous survey of the territory is absolutely indispensable, as is established in the Agreement of 1896, which embodies the decision of both Governments. Although the information he already possessed, and that with which his assistants would furnish him, when they had worked them out, might be sufficient for him to form an opinion of the correct general boundary line, as he was personally familiar with the territory with regard to which any difficulty might arise, nevertheless he could not admit that it would be sufficient for an umpire to settle the differences by only examining the plans of the preliminary surveys.

Three days before this meeting, Señor Barros Arana sent a note to Señor Moreno, in which he did not hesitate to entirely ignore the Cordillera in certain districts as a boundary between Chile and the Argentine Republic. He said :—

“I therefore consider that there exist fundamental differences of opinion which would hamper the regular continuation of the work of demarcation, and I deem it my unavoidable duty to solicit explanations which will place us in a position to expedite the demarcation, thus carrying out the desires, so many times expressed by our Governments, and the hopes of both countries, to see removed all cause of apprehension with regard to their amicable relations.

“From the very first meeting I had with your predecessor Señor Don Octavio Pico, in January 1892, in order to deal with the carrying out of the demarcation operations, I had occasion to clearly explain to him that, in my opinion, the essential and absolute character of the boundary line, according to the Treaty of 1881, was that of dividing the waters which irrigate both countries. On many occasions I made similar declarations to your other predecessors, Señores Virasoro and Quirno Costa. Your predecessors, though not categorically accepting this fundamental principle, did not clearly repudiate it by proposing another instead, whereby one could know the characteristics of the line which, in their opinion, must be adopted in the demarcation.”

Señor Barros Arana appears to have forgotten that on these occasions the Argentine Experts who had preceded Señor Moreno, had refused to pursue the demarcation according to the pretensions of the Chilean Expert and that, three times over, the Governments had intervened to establish, by Treaties and other Conventions, *that the Argentine Experts were in the right, and that the dividing line was to be located in the Cordillera de los Andes.*

This communication was addressed to the Argentine Expert just at the

time when that portion of the press of Santiago which favoured the Chilean Expert, advocated unlimited and absolute arbitration for the whole question of the boundary, and condemned the Argentine Government and their Expert for not agreeing to submit to this.

The claims of the Chilean Expert were tantamount to completely ignoring the Treaty of 1881 and the Protocol of 1893; he also disregarded the Instructions of 1894 and the Agreement of 1896, which limited arbitration to questions concerning the placing of landmarks *in the Cordillera*; these pretensions were therefore repudiated by the Argentine Expert, who, as his predecessor had repeatedly done before, declared *that it had been definitely decided that the boundary must be confined within the Cordillera de los Andes, and that nothing beyond the Cordillera could form a subject of discussion or a matter for arbitration.*

In the Argentine Congress it had been affirmed, after the Treaty of 1881 and the Protocol of 1893: that the Argentine Republic is entitled to declare that the Cordillera de los Andes is the boundary of her territory; that this declaration must be the basis of all her diplomatic relations with Chile; that the Cordillera contains the divisional line; that only *within* the Cordillera can any dispute arise concerning the interpretation of the Treaty; and that eastward of the Cordillera the Argentine rights would not be discussed.

The Argentine Expert maintained the same views, not only because they embodied what had been agreed in the Treaties, but because no boundary could be better chosen to preserve harmony between the two neighbouring powers: and it would be deplorable to transfer it to places where it would give rise to constant disputes and acrimonious relations between the inhabitants of the frontier, and possibly to conflicts between the two nations.

The note of Señor Barros Arana was answered by his colleague on May 12, 1898. The Argentine Expert, in his communication, referred to the complaint addressed to him concerning the refusal of his assistants to take notice of some landmarks proposed by the Chilean Sub-Commissions, and said:—

“The said proposal will not be considered by the Argentine Sub-Commission, as the ‘water divide’ proposed as the international boundary is *situated outside the Cordillera de los Andes—a very common phenomenon in the southern part of this continent, and one which was verified in the vicinity of the 52nd degree of latitude by the learned Engineer in Chief of the Chilean Commission (Señor Alejandro Bertrand).* The work of demarcation must only be carried out in ‘the Cordillera de los Andes,’ and while the Treaty of 1881 and Protocol of 1893 are in force, neither the Sub-Commissions, nor the Experts, nor the Argentine or Chilean Governments may extend it or cause it to be made outside that Cordillera.

"Your communication ends by inviting me to give a concrete form of the basis of delimitation now followed by the Argentine Sub-Commissions, whether by means of a precise and explicit formula, or by the geographical tracing of the general frontier line in the extent that may be possible within the term referred to in the preamble to the Resolution of May 1, 1897—an invitation which I beg to say is not opportune, as a period has been decided upon, and you have no reasons for supposing for a moment that I should fail to fulfil my part of the Agreement which I was the first to propose. Furthermore, you put before me the essential and absolute character of the boundary line prescribed by the Treaty of 1881, which, according to your opinion, is that of dividing the waters which irrigate both countries—a fact which, you tell me, you stated in January 1892, to my predecessor Don Octavio Pico, and later, to the other predecessors in the office which I now hold, Señores Virasoro and Quirno Costa. You must permit me *not to consider here the statement of your views with regard to the boundary line. We as Experts have no other duty than that of tracing the frontier in strict accordance with the stipulations which determine the Cordillera de los Andes as the boundary between the two nations which we represent in this question*, which stipulations, as shown in the texts of the Agreements of 1881 and 1893, provide besides that the boundary line '*shall run along the most elevated crests of said Cordillera that may divide the waters, and shall pass between the slopes which descend one side and the other.*' I cannot, therefore, discuss interpretations of the Treaties, which would reopen an unfruitful debate which I think it expedient to terminate."

5. THE WORK OF THE ARGENTINE AND CHILIAN BOUNDARY COMMISSIONS.

After the meeting of May 14, 1898, the Argentine Expert returned to Buenos Aires, in order to expedite the execution of the labours of his assistants.

A short time after, he received from the Chilean Expert a communication, in which the latter emphasised the necessity of expediting the work—which he on his part had not done—and complained that the Argentine Sub-Commissions had not replied to some of the Chilean propositions.

The Argentine Expert promptly replied to this note, giving the true state of the case. *

* Señor Moreno wrote in June 26, 1898 :—"I have received your note of May 22 last, to which I proceed to reply. You inform me that a conference having been held on May 14 last, at which we were present, in the office of His Excellency the President of the Chilean Republic, at which I announced my approaching journey to this capital, and my return to Santiago in the month of August, the period fixed to commence the discussion and settlement of a general frontier line, in accordance with *data* we might both have collected, this Agreement fulfilled the main object you had in view in addressing to me your communication of the 11th of the same month.

"I regret to have to revert to this 'main object,' and must again insist that you could not have pointed out to me the importance of carrying out my undertaking, you being aware of the exertions made and which

It was in vain that Señor Barros Arana exerted himself to lay the blame upon the Argentine surveying parties for delays for which he alone was responsible.

are still being made by the Sub-Commissions under my orders, to enable me to carry it out, exertions which exceed those realised by the Sub-Commission under your charge.

"I remember that, at the meeting referred to, you said that the region of the Cordillera between lat. 47° and 49° 30' S. being completely unknown to you, the general frontier line would be settled, in that part, in accordance with the plans and investigations which the Argentine Commission might submit.

"It was I who, on April 21, 1897, proposed to His Excellency the President of Chile that, for the purpose of terminating, in the shortest time possible, the demarcation of the international boundary, you should be given the same facilities as those accorded to me by my Government, so that, by increasing the number of Sub-Commissions and providing them with further elements, we should be able to hasten our operations and find ourselves in a position to decide, by the end of the coming season (that is to say during the present months), the general boundary line; repeating at that time what I had already stated to you several times, as to the necessity of preliminary investigations which always precede the demarcation of frontiers in every country in the world.

"It was in view of this proposal that the Chilean Minister for Foreign Affairs, Señor Morla Vicuña, suggested to you that we, the Experts, should agree together and carry out all the work which might enable us to decide as to the dividing-line in the time named, and you will recollect that, during the exchange of views preceding the statement of May 1, owing to the doubts expressed by you of our not being able to carry out, in so short a time, such extensive labours, I intimated that, for my part, I should be ready by the time named. I then repeated to you that my Government would supply me with all I might require, as it was very desirous of bringing this lengthy question of boundaries to a conclusion as early as possible.

"If you entertained any doubts as to the possibility of satisfying the desires expressed to us by our Governments, as to the expediency of determining in the coming season a general frontier line, the doubts which I then entertained, were not because I thought my efforts would be insufficient, but because you did not believe you could accept the five new Sub-Commissions which I proposed, but only one to work south of lat. 41°. You considered it impossible to find a sufficient number of surveyors in Chile, necessary for the new Sub-Commissions, whilst, on my part, I had the required number of them. It being agreed that it was impossible for a single Sub-Commission to be able to survey nine degrees in one season, we decided to create three new Sub-Commissions, instead of five proposed by me, I contenting myself with increasing the number of assistants in each of my Sub-Commissions.

"It was necessary that the rumours of possible grave difficulties between the two nations which we represented should cease, and to effect this it was indispensable that we, the Experts, should have the necessary data to form our own opinion with respect to all the territory on which the frontier line would be traced in accordance with the existing Treaties; considering that the procedure followed up to the present (which is without precedent in the world), of fixing in detail the boundaries of a frontier whose general features were almost completely unknown, would oblige me to continually make investigations which would have required many years.

"I had communicated to His Excellency the President of Chile what my views were regarding the demarcation operations, and the necessity of carrying out, prior to fixing the boundaries in detail, a preliminary survey of the Cordillera de los Andes, so as to be able to locate within that Cordillera the general line of frontier, in accordance with the Treaties; and it was, therefore, my duty to take all the precautions possible, so that my views, which were to be converted into an Agreement between the two nations, should be carried out in a satisfactory manner.

"I have therefore seen, with surprise, that you, ignoring my priority in the intention of practically carrying out the desires so frequently manifested by the Governments of Argentina and Chile, have attempted to urge me to fulfil my duty, and you continue to state in reference to this that you were satisfied with what was decided at the meeting of May 14.

"The day will come, sir, when I shall prove that it is not the Argentine Expert who has wished to delay the definitive solution of the protracted question of boundaries. Then the work of the Chilean and

The Argentine Expert insisted once more that neither the assistants, nor the Experts, nor the Governments could fix the divisional line outside of the '*immovable boundary of the Cordillera de los Andes*,' and he repeated to Señor

Argentine engineers will be examined, and it will be demonstrated whether the Argentine Sub-Commissions have acted rightly or wrongly in rejecting proposals which, if accepted, would have completely destroyed the hopes which the two nations that we represent anticipated from the carrying out of the Agreement of May 1.

"The Instructions of internal order given by me to my assistants are the same which you might have given to yours, without violating the Agreements, and all tended to the greater success of the work which I had entrusted to them. With some of their clauses, I have sought to avoid delays which, had I assented thereto, would have made me break an Agreement which is inviolable.

"To abandon the investigation of the whole region which must comprehend the general line of frontier in order to fix the actual boundary in a gap, etc., that is to say, in a very limited area, would not have been to 'accelerate the demarcation,' and by so doing I should have failed to keep my word as an Expert. The work of demarcation is accelerated by fixing a general line of frontier, and that is what was understood by their Excellencies the Presidents of the Argentine Republic and Chile, in their opening messages to the respective Congresses.

"I find that we are not in accord with respect to the word 'demarcation.' To you it appears that the work of demarcation solely consists in the fixing of actual boundaries, whereas to me, the demarcation operations include all the work which should be executed in order to fix a frontier line. The only instance in which an Argentine assistant accepted the invitation of a Chilean assistant to a joint meeting, occurred in Sub-Commission No. 6. The assistants, according to the Instructions given them by us on February 17, 1897, in order to carry out what is laid down in Article I of the Agreement of April 1896, were to meet together in order to agree on the plan for carrying out the work, in accordance with the said Instructions; but it was in vain that the Argentine chief assistant attended the meetings arranged with the Chilean chief assistant. According to the declarations of the latter to the Argentine second assistant, such meetings were unnecessary. In consequence, the Argentine assistant lost several days which might have been devoted to additional surveys, had he received my orders in time. This, nevertheless, has not prevented said Commission from providing me, from work executed by it, with the *data* required to come to a decision as to the general frontier line in the whole region specified in the said Article of the Agreement of April, whilst *it is known to me that the Chilean Sub-Commission has not visited at least half of that zone.*

"The Treaty of 1881, the Protocol of 1893, and the general Instructions for the demarcation in the '*Cordillera de los Andes*,' which you and my predecessor Señor Quirno Costa gave, provide that the work of demarcation shall be made in the '*Cordillera de los Andes*.' And I have told you that neither assistants, nor Experts, nor Governments can seek the dividing line outside of that '*immovable*' boundary fixed by the Treaties. Moreover, the case of the region where the first assistant of the Chilean Sub-Commission No. 8 proposes to demarcate, is not quite analogous to that of the region in which are situated Las Damas and Santa Helena landmarks. In the latter the course of the Río Grande is as well known as is the Maule, or any other river of Central Chile which originates in the Cordillera de los Andes; whereas in lat. 44°, where Engineer Barrios proposes to demarcate, the demarcators of both countries are unable to say that they possess the necessary *data* to form an opinion so long as they have not made previous surveys of the zone which should contain there the Cordillera de los Andes and its main chain.

"In all boundary demarcations, the limits are discussed *with complete knowledge of the ground which such demarcation is to include, and this was understood by the Governments of the Argentine Republic and Chile* when they agreed that the differences which might arise between the Experts and which those Governments might not solve, should be decided by the Arbitrator, who must strictly apply in such cases the clauses of the Treaty of 1881 and the Protocol of 1893, *the ground being previously surveyed.* The Argentine Sub-Commissions will always take into account whatever proposal may be made to them as to places situated within '*the Cordillera de los Andes*,' but *never* as to places situated outside this Cordillera.

"I hope that, at the conferences we are to hold in August next, 1898, and at which we, the Experts, will have to settle the general dividing line, each of us will supply the data we shall have collected, so as to

Barros Arana that his assistants would take into consideration any proposition which might be made to them about places situated within the Cordillera de los Andes, but not with regard to any points lying outside the Cordillera.

It must be pointed out to the Tribunal, that the Chilean Expert avoided mentioning in his communications the "Cordillera de los Andes," purposely setting it aside, thus overlooking the clauses in the Treaties of 1881 and 1893, and the Agreement of 1896. He thereby sought to raise disputes with the Argentine Expert, in order to compel him, contrary to the stipulations, *to submit to arbitration the interpretation of the Treaties, and not simple divergences with regard to the placing of landmarks in the Cordillera.*

Moreover, at the meeting that the Experts were to hold in August, there would be clearly shown the extent of the work carried out by the Commissions of both countries, and how far each of them had complied with the Agreement of May 1, 1897.

The Argentine Commissions, which had been charged with delaying the proceedings, had nevertheless visited the whole length of the frontier, carrying out all the reconnaissance that the short time at their disposal allowed. The Chilean Commissions, on the other hand, restricted their labours within small areas, the Expert being, therefore, compelled to declare that a vast portion of the boundary line was utterly unknown to him.

The two sketch-maps annexed, which present a graphic idea of the labours performed by the one and the other, have been drawn with the data contained in the official communications of the Experts to their respective Governments.

On August 1, 1898, the Argentine Expert informed the Minister for Foreign Affairs that he was ready to proceed to Santiago, in order to fulfil his undertaking of May 1, 1897.*

determine the mountainous region, to be considered as the Cordillera de los Andes, which is the 'immovable boundary.' In the meanwhile, I shall continue in the belief that the region, the demarcation of which by means of landmarks is proposed by the Chilean Sub-Commission (No. 8), does not correspond with that in which we ought to seek for the international dividing line. Within the powers which I possess as Expert, in accordance with existing Treaties, I am disposed to consider all the proposals which you may submit to me; but I must decline their consideration when such proposals refer to points which I consider to be altogether outside our functions."

* The following extracts give a general idea of the surveys performed by the Argentine surveying party:—

"*Sub-Commission No. 1*, which was divided into two sections for the purpose, has surveyed the Cordillera from lat. 29° S., the terminating point of the previous year's investigations, as far as 26° 40', and the district comprised between lat. 30° S., where the work of 1896 ended, and the parallel 32° 25'.

"*Sub-Commission No. 2*, also separated into two sections, to work on the north and south of the Uspallata

With the data gathered during the survey of the ground, the Argentine Expert was able to formulate the general boundary line. On the other hand,

road, has surveyed the Cordillera between the parallel $32^{\circ} 20'$ and the Maipú Pass, south of the volcano of the same name, where the Experts have not yet agreed as to the exact position of the dividing landmark.

"*Sub-Commission No. 3*, also divided into two sections, has continued its survey from the landmark of the Santa Elena Pass, and proceeded with the survey as far as parallel $37^{\circ} 30'$, where the investigation of *Sub-Commission No. 4* terminated on the north, which latter continued the same from this latitude far enough to complete the surveys made in the preceding period, between the parallels of $37^{\circ} 20'$ and the Volcano Lanin, and proceeded with their survey as far as the vicinity of the parallel of 41° , to the west of Lake Nahuel Huapi.

"*Sub-Commissions Nos. 7, 8 and 9* have explored the region, previously unknown to a great extent, between the degrees of 41° and 50° S., and their surveys will enable me to form an exact idea with regard to the position of the Cordillera de los Andes, beginning at the 41^{st} degree of latitude, and of its principal chain, for the survey of which these three Sub-Commissions were appointed on May 1 of the preceding year.

"*No. 7* has made surveys and important discoveries between Lake Nahuel Huapi and the territories neighbouring Río Palena to the south, having explored the region of that lake and those of Lakes Gutierrez, Mascardi, Guillermo, Menendez and Rivadavia, and portions of the rivers Puelo, Ftaleufú and Bodadahué.

"*No. 8* has made still more important discoveries between the central tributary of the Palena and the parallel 47° lat. S., and both this and *No. 7* have partially explored the western region, washed by the waters of the Pacific, which penetrate into the Cordillera through prolonged inlets. Among the explorations made by this Sub-Commission must be mentioned the survey of the rivers Queilal, Cisne, Aysen and Las Heras, and of the great Lakes Fontana, La Plata, Buenos Aires and Soler.

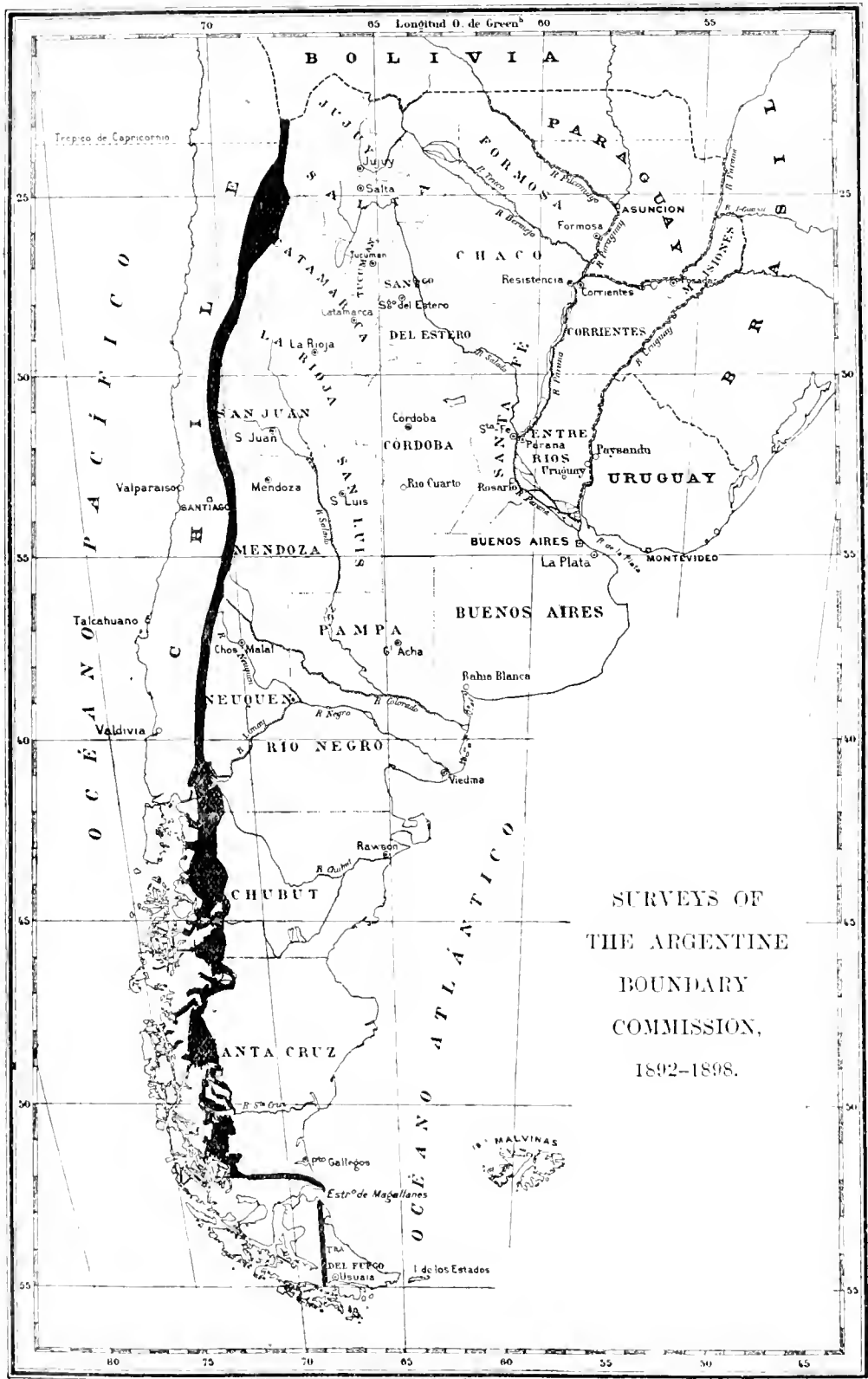
"*Sub-Commission No. 9* has had for its sphere of action a district three-quarters of which were previously absolutely unknown, and has been very successful, having succeeded in dissipating the mystery which enveloped this part of the '*Cordillera de los Andes*.' During the labours, Lakes Pueyrredon, Brown, Nansen, Burmeister, Azara, Cardiel and Quiroga have been discovered, among others, and Lakes San Martín and Viedma navigated.

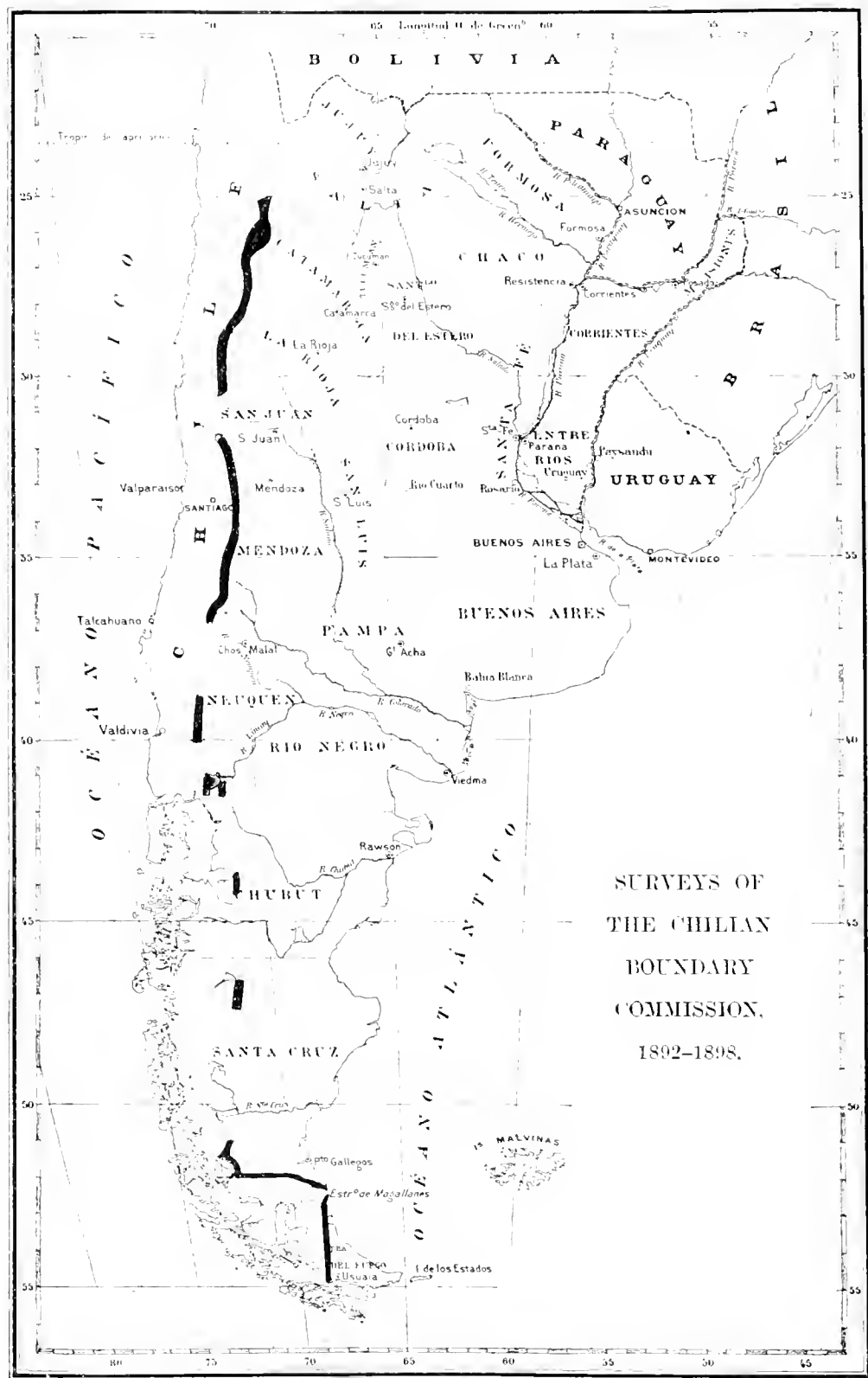
"*Sub-Commission No. 5* has carried on its labours between lat. 50° and 52° S. and terminated its work by tracing the latter parallel. Among its most important surveys should be cited that of the region to the west of Lake Argentino, and also of the one situated to the south and west of the Sierra de los Baguales.

"The transport '*Azopardo*,' and the despatch-boat '*Golondrina*' have rendered important services to this Commission during the whole period, and their surveys, which comprise various extensive coast districts between the parallels of 42° and 52° S., have given excellent results, as they have succeeded in making numerous discoveries of islands, channels and rivers which will enable me to form a sufficiently approximate idea of the western region of the Cordillera, in the districts visited.

"In short, in order to give an idea of the geographical progress which the labours of Sub-Commissions Nos. 7, 8, 9 and 5 have brought about as regards the extreme south of the continent, I will say that forty-three lakes and various large rivers situated in the *Cordillera de los Andes* and the eastern surrounding country, appear on the plans; that in the west of the Cordillera five rivers have been discovered, three of them being very important, and two, of which little was known previously, have been partially explored, as well as new islands and various channels and creeks which never before appeared on the maps, together with a considerable number of new mountain cordons and massifs.

"These surveys have not been circumscribed to determine the topography of the Cordillera de los Andes and its lateral confines, which it was indispensable that I should know thoroughly throughout its whole extent, in order to trace in said Cordillera the dividing line of the frontier, as provided for in the Treaties which I am charged to execute for the Argentine Republic. By means of the resources for investigation at my disposal, vast fertile tracts in Patagonia, indisputably Argentine, and about which we only had the scantiest information, have been surveyed, and have verified the facility with which access can be had to the country by navigating the rivers and lakes; level roads without obstructions of any kind whatsoever have also been found—routes which could be utilised at once to approach, and to colonise these tracts, containing as they do both forest and mineral wealth."





the Chilean Expert could only present plans of one half of this line, based in the surveys of his assistants, as may be inferred from his own official report, an extract of which is given below.*

* Summary of the work performed by the Chilean Boundary Sub-Commissions. [In Mensaje leído (June 1, 1898) por S. E. el Presidente de la República (de Chile) en la apertura de las Sesiones ordinarias del Congreso Nacional y Memorias ministeriales, Santiago de Chile, 1898, pp. 39-43]:—

"*Sub-Commission No. 1.*—It has completed the survey of the Cordillera between the parallels $27^{\circ} 55'$ and $28^{\circ} 40'$, corresponding to the passes of Quebrada Seca and Inca. . . . It has also completed the survey of the Cordillera between the parallels 30° and $30^{\circ} 50'$ S., corresponding to the passes of Laguna and Valle Hermoso. . . .

"*Sub-Commission No. 2.*—It has completed the survey of the Cordillera between the parallels $31^{\circ} 46'$ and $33^{\circ} 20'$ S., where the international passes of Puenteillas and Tupungato are situated. . . .

"*Sub-Commission No. 3.*—It has continued the survey of the Cordillera between the slope of the Neuquen and that of Rio Ñuble as far as the parallel 37° S. It has proposed the demarcation of seven new passes, which, added to the thirty-four already proposed, make a total of forty-one which have not yet been either accepted or refused by the joint Argentine Surveying Party.

"*Sub-Commission No. 4.*—The woody character of the Cordillera in which this party is working, as also the exceptional rigour of the season, has prevented it from advancing to so high a latitude as in other seasons. The party has, however, carried the triangulation as far as Lake Lacar, and has proposed the demarcation of five crossing points of the Cordillera, which, added to the four already proposed, make a total of nine which have neither been accepted nor refused by the Argentine Surveying Party.

"*Sub-Commission No. 5.*—This surveying party is divided into two sections. The first has completed the demarcation of the boundary in the parallel 52° , as far as the point in which the waters commence to flow towards the Bay of Obstruction, which forms part of the channels of the Pacific Ocean. The second section has continued its survey towards the north of the region of the Continent where the division of waters occurs, and this as a preliminary exploration in order to base the delimitation of the zone which, in this part, is to belong to Chile, according to Article 2 of the Protocol of 1893.

"*Sub-Commission No. 6.*—It has prosecuted, in the Puna de Atacama, the exploration and survey of the mountain ridges and basins, which constitute the Cordillera of this region, from the pass of Quebrada Seca towards the north as far as the parallel of 25° S.

"*Sub-Commission No. 7.*—This surveying party commenced its task in the Paso de los Raulies, in lat. 41° , and prosecuted it southwards as far as $41^{\circ} 35'$, and proposed the demarcation of three international passes, which have not yet either been accepted or refused.

"*Sub-Commission No. 8.*—This surveying party commenced its surveys a little to the north of the parallel 44° S., and extended them for 30 minutes of latitude, and proposed to fix the demarcation in this line. . . .

"*Sub-Commission No. 9.*—It commenced the exploration of the ground from $46^{\circ} 35'$ on the shores of the lake Buenos Aires and has continued for 40 minutes of latitude towards the south. The head engineer of our surveying parties performed, in this season, a journey of inspection of the ground which is being explored by the parties 4, 7, 8, 9 and 5, between the parallels $38^{\circ} 30'$ and 52° lat., partially exploring the country through which he passed. The principal object of this journey was to make a personal investigation of the features of the ground of the demarcation, in the zone allotted to each surveying party, and this object has been fully achieved.

"*General Boundary Line.*—Taking into consideration all the geographical labours accomplished up to the present time, the following is the state of the survey of the line of demarcation of the Andean boundary with the Argentine Republic, *which boundary-line is no other than that which separates, in every point, the sources of the Chilean rivers from those of Argentina.* From parallel 27° up to 31° the survey of the line is complete in all its details. In this extension of about 700 kilometres (434.97 statute miles), more than sixty accessible points have been fixed for the erection of landmarks. From parallel 31° to 37° S., in an extent about equal to the preceding, more than ninety points have been fixed. In the distance of more than one hundred kilometres (62.74 statute miles), comprised between the parallels 39° and 40° , seventeen points have been fixed. To the south of parallel 40° , the surveys performed during the present season have been intermittent, and, although a

In their proper place will be presented some more particulars of the surveys performed by the Commissions of both countries, which will explain clearly the differences between the Argentine and Chilian general maps submitted to Her Britannic Majesty's Government.

At the end of August, 1898, the Argentine Expert was in Santiago, where he met the Chilian Expert, in order to attend the conferences which were to take place concerning the general boundary line. Thus all the alarm about the delay was groundless. The short lapse from May to August had been indispensable to the Commissions of the two countries in order to enable them to draw the plans concerning their recent surveys.

The respective work of the two Boundary Commissions is interesting. When comparing them it is seen that all the proffered assurances of the Argentine Expert were realized; and it is also seen that the Chilian Expert was under the necessity of confessing that certain vast regions were utterly unknown to him. The Chilian Expert said that south of lake Nahuel Huapi up to parallel 47° S., to the south of lake Buenos Aires, all the boundary line might be traced on the plans formed *from the explorations of both countries*. This conclusion contradicts the desire expressed by the Chilian Minister for

considerable extension of the boundary line has been fixed, we will not take the results into account for the present. Between the parallels 23° and $26^{\circ} 52' 45''$ the geographical researches previously accomplished by Chile, combined with those achieved by the sixth surveying party during two seasons, furnish sufficient material to prepare the fulfilment of Article 1 of the Agreement of April 17, 1896. In the distance of 120 kilometres (74.57 statute miles) between the parallels 31° and $31\frac{3}{4}^{\circ}$ the boundary line, marked in the ordinary maps, may be accepted, and in these six positions of passes are fixed. In the space of 250 kilometres (155.35 statute miles), between parallels 37° and 39° thirteen positions of known passes may already be pointed for the erection of landmarks. In this section, as in the preceding, all the intermediate points of detail will be determined during the coming season, but they will in no wise alter the general plan of the line. To the south of the parallel 40° for a distance of 200 kilometres (124.28 statute miles), as far as Tronador, seven more points may be fixed. Thus, from parallel 27° up to $41^{\circ} 16'$, it may be said that Chile is in a position to fix all her boundary line by means of from 210 to 215 landmarks. To the south of lake Nahuel Huapi up to parallel 47° S. to the south of Buenos Aires, all the boundary line may be traced on the plans formed *from the explorations of both countries*, with the exception of the part where Lake La Plata is situated, and this could no doubt be completed upon the return of the Steffen expedition. BETWEEN THE PARALLELS 47° AND $49\frac{1}{2}^{\circ}$ THE GEOGRAPHICAL LOCATION OF THE BOUNDARY LINE IN THE CORDILLERA IS COMPLETELY UNKNOWN. From the parallel $49\frac{1}{2}^{\circ}$ to 50° S. it may be traced *in part approximately*, and in the most important part with absolute precision. In short, THE ONLY REGION WHERE IT IS IMPOSSIBLE TO MARK A BOUNDARY LINE IN A MAP, EVEN APPROXIMATELY, *is that lying between lat. 47° and $49\frac{1}{2}^{\circ}$ S., viz. between the sources of the River Descado as far as Lake Viedma.* According to the imperfect data which are up to now available concerning this district, access from either side is very difficult, and it does not contain any kind of land which could be utilised. On the other hand, there is nothing to lead one to suppose that any further exploration would give rise to controversies with regard to fixing the boundary line in this region. In any case, the said region is, undoubtedly, the most inaccessible and the least interesting on the whole of our frontier, and the lack of information concerning it could in no wise be an impediment to the demarcation of the frontier throughout all the remainder."

Foreign Affairs, who, as it has been stated, told Señor Barros Arana that he must hold himself in readiness to present "the general line of demarcation which corresponds to the truth, *according to the surveys made by the Chilean Commissions.*" The Chilean Expert was compelled to accept the Argentine surveys, notwithstanding the orders he received: because in the zone that he mentions, the extent of which is about six degrees of latitude, his Commissions only surveyed one degree and thirty minutes, since, according to the same Expert, the three parties entrusted with the exploration of that zone verified their work thus: the 7th in an extent of 35', the 8th in 30' and the 9th in 25'.

Regarding the region between parallels 47° and $49\frac{1}{2}^{\circ}$, Señor Barros Arana says: "*Between the parallels 47° and $49\frac{1}{2}^{\circ}$ THE GEOGRAPHICAL LOCATION OF THE BOUNDARY LINE IN THE CORDILLERA IS COMPLETELY UNKNOWN,*" and he adds:—"In short, the only region where *it is impossible to mark a boundary line in a map, even approximately,* is that lying between lat. 47° and $49\frac{1}{2}^{\circ}$ S., viz. between the sources of the river Deseado as far as lake Viedma."

In spite of this, Señor Barros Arana projected a general line which embraces all the extent of the frontier, and passes through districts of which he had information gathered by his assistants, and through places the topography of which was totally unknown to his assistants and to himself. A line thus conceived does not admit of any defence. Of such a line it is impossible to say that it was drawn according to the Covenants, or that it follows the Cordillera. The opinion, in any sense, of one who acknowledges his ignorance is more than hazardous as regards those regions he considers as absolutely unknown.

CHAPTER XIII.

- Summary*—1. FULFILMENT OF THE ENGAGEMENT ENTERED INTO BY THE EXPERTS ON MAY 1, 1897.
2. PROPOSALS FOR THE GENERAL LINE OF FRONTIER.
3. AGREEMENT AND DIFFERENCES BETWEEN THE EXPERTS.

1. FULFILMENT OF THE ENGAGEMENT ENTERED INTO BY THE EXPERTS ON MAY 1, 1897.

THE engagement entered into on May 1, 1897, at the instance of the Argentine Expert, had for its object to hasten the completion of the delimiting operations in order that both Experts might propose as soon as possible, the general, line of frontier from lat. 23° to 52° S.—an operation preliminary to any tracing of the frontier, and one which would also serve to fix the principal landmarks on the ground, within which the assistants of the Joint Commissions might establish the line in detail without any great difficulties, which could not arise after those principal landmarks were settled by the Experts.

The persistent tendency of the Chilean Expert to carry the boundary line outside the Cordillera de los Andes, and the opposition of the Argentine Expert to discussing any such line, had created, as has been said, a most difficult situation : but happily the Chilean Expert, who had from the very beginning objected to a previous examination of the Cordillera, had received instructions from his Government to accept the proposal of the Argentine Expert, and thus it was made possible to hasten the definite delimitation as both Governments desired.

The Experts having arranged, on May 1, 1897, that at the end of next season's operations they should be in a position to decide on the general frontier line, the Argentine Expert, immediately on his arrival at Santiago in August, 1898, informed his colleague that for his part he was ready to carry out the engagement entered into, though he was convinced that his colleague was not equally prepared.

This engagement only turned upon geographical facts. Both countries required that the operations of the Experts should come to an end as soon as possible, by means of the decision to be arrived at with reference to the general frontier line. Eventual difficulties in tracing the line having been foreseen, and the mode of settling them having been agreed upon, the Argentine Government desired that any agreement or disagreement that might take place should be strictly within the terms of the Treaties, in order that, should divergences arise which could not be solved by the Governments, they should be referred to the Arbitrator.

Notwithstanding this, the Representative of Chile gave a misleading version concerning the differences of opinion which have arisen, when he stated to the Tribunal, at the sitting of May 8 last, that—

“The question that the Governments of Chile and of the Argentine Republic submit to the impartial decision of Her Britannic Majesty’s Government rests in the practical interpretation which one and the other party claims to give as to some sections of the boundary to certain stipulations entered in the convention intended to fix the frontier line between the two nations. Chile maintains that, in conformity with the prescriptive stipulations of those Conventions, the frontier line shall pass over the highest summits of the Andes, which divide the waters, invariably separating the sources of the rivers which belong to one and to the other country; and that, in tracing such line, the peaks, ranges, or ridges of mountains, no matter how high they may be, if they do not divide the waters of the fluvial systems belonging to each country, must be left within the territory of the respective nation.”

At the same meeting, the Chilean Representative added that the Argentine Government firmly held that the demarcation of the frontier between the two countries was determined by the line which divides the waters which run respectively towards the Pacific and towards the Atlantic—which principle had to be observed even in the regions where the Cordillera de los Andes opens out or becomes lower.

It is, therefore, necessary to state once more to the Tribunal that the Argentine Government never held such views, and that after the differences had arisen in August and September 1898, they had no opportunity to consider abstract theories, since these theories could not be brought before the Governments by the Experts, for one single and effective reason, viz., the Experts were never empowered to discuss theoretical principles. The boundary was fixed in the Cordillera de los Andes by the Treaty of 1881, and what was to be understood by that boundary was clearly defined by both Governments in the

Protocol of 1893 to be the main chain of the Andes. The powers given to the Experts were exclusively limited to plan the line in the agreed main chain of the Andes.

Never has the continental divide as the boundary between the two Republics been agreed to, nor has it ever been proposed by the Government of the Republic of Chile to the Argentine Government, and that for one single reason : it was precisely to avoid its having a place in the boundary question that the Protocol of 1893 and the Agreement of 1896 were entered into, thus putting a stop by those international conventions to the reiterated pretensions of the Chilean Expert.

Since the Experts had not power to entertain such a question, and since the Governments expressly agreed that the differences should be confined within the Cordillera de los Andes, they could not bring an abstract principle before Her Britannic Majesty's Government, and the Tribunal is not called upon to consider the matter in such a light, nor to report upon it.

2. PROPOSALS FOR THE GENERAL LINE OF FRONTIER.

In order to support the assertions made, there is laid before the Tribunal the evidence relating to the differences between the Experts which have been submitted to the Government of Her Britannic Majesty.

First Meeting of the Experts.—The first meeting of the Experts took place on August 29, 1898. The Chilean Expert, Señor Barros Arana, stated that he had prepared the tracing of the general Chilean boundary line in the Andes, stipulated in the Treaty of 1881, which he presented to his colleague on a map, together with a list enumerating the points chosen, adding :—

“That for the tracing of said line he had solely and exclusively followed the principle of demarcation established in Article 1 of the Treaty of 1881—a principle which must also be the invariable rule of the proceedings of the Experts according to the Protocol of 1893 ; that, consequently, the boundary line that he proposes runs along all the highest crests of the Andes which divide the waters, and constantly separates the springs of the rivers which belong to either country ; that the same line leaves within the territory of each of the two nations the peaks, ridges, or ranges, however elevated they may be, WHICH DO NOT DIVIDE THE WATERS OF THE RIVER SYSTEMS BELONGING TO EACH COUNTRY.”*

* The use of this word by Señor Barros Arana is explained in p. vii, footnote.

The Chilean Expert thus began by distorting the principle of the delimitation laid down in the Treaties, which is that the boundary between the Argentine Republic and Chile, as far as parallel 52° S., is “*the Cordillera de los Andes*,” and that “the frontier line shall run in that extent *along the most elevated crests of said Cordillera that may divide the waters, and shall pass between the slopes which descend one side and the other.*”

None of the Treaties says one single word as “*to the rivers which belong to either country*,” for the simple reason that, so long as the boundary along the high summits of the Cordillera de los Andes had not been marked out (which was the case at the time when the Treaty was framed), it was not possible to determine how far the rivers belonged to one country or the other, since the Cordillera is cut by rivers which have some sources on the side opposite to that on which their principal waters run (a fact known and accepted by the negotiators of the Treaties). In order to know which rivers and parts of rivers were Chilean, and which Argentine, the previous delimitation of the frontier was necessary.

On the other hand, even before the Treaty, the Cordillera was acknowledged as the boundary, and the people of the two countries were perfectly aware that some rivers intersected it. The boundary along the highest crests of the Andes was a fact, whilst no one, either in Chile or in the Argentine Republic, could say which were the rivers belonging to each nation, and still less where were to be found the sources of the said rivers.

The *continental divide* south of lat. 37° was not perfectly known in 1881. No one can reasonably suppose that the two Governments would agree upon such an uncertain and imaginary frontier line, when there existed the logical traditional boundary along the summit of the Cordillera.

As to the proposed line “leaving within the territory of each country the peaks, ridges or chains, however elevated they may be, which do not divide the waters of the river systems belonging to each country,” this was nothing more than the individual opinion of the Chilean Expert, independent of the wording of the Treaties, which might proceed from an error of judgment respecting the Cordillera de los Andes and its fluvial system—an error caused by the deficiency of information, already confessed and ratified in the following lines of the Record :—

“That, though in its most extensive and important parts, the ground over which the divisional line runs has been sufficiently reconnoitred and even carefully mapped out, as had likewise been in general well established, the geographical dependency of the rivers

and streams which descend either side, he must nevertheless point out *that the topographical location of the proposed line is wholly independent of the exactness of the maps*, and that he therefore declares that said line is no other than the natural and effective dividing line of the waters of the South American continent, between parallels $26^{\circ} 52' 45''$ and 52° , which can be demarcated on the ground without effecting *more topographical operations than are necessary for determining which would be the course of the waters there where they do not actually flow.*"

Thus, the want of geographical data—without which no proper delimitation is possible—was explicitly avowed by the Chilian Expert. He also clearly showed his tendency to elude the exact representation of the ground, perhaps because he recognised that this exact representation would suffice to condemn the proposed line. Moreover, he declared that the said line was an ideal line, viz. the *continental water divide*, whose demarcation would need none of the topographical operations ordered by the Protocol of 1893, and by the Instructions given by the Experts for the delimitation *in the Cordillera de los Andes on January 1, 1894*, and signed by Señor Barros Arana himself. The Chilian Expert's proposition embodied "a principle of delimitation," which, if accepted, would have radically altered the Treaties in force.

He proposed, in addition, a series of proceedings for the purpose of hastening the termination of the work, for fixing the boundary in the points and stretches on which the two Experts should agree, and for submitting to their respective Governments the divergences that might arise. He concluded by presenting a description of his general frontier line, starting from parallel $26^{\circ} 52' 45''$ and leaving out the zone comprised between parallels 23° and $26^{\circ} 52' 45''$, contrary to what was ordered in the Agreement of April 17, 1896.

It is unnecessary to reproduce here the enumeration of the points in which Señor Barros Arana locates the dividing line, as this matter will be discussed at the proper time ; for the present, the attention of the Tribunal will only be called to the following important facts. It had been agreed in the Protocol of 1893 that the boundary line should pass along the summits of the mountains, in the main chain of the Cordillera, and its Article 6 orders that a landmark is to be placed *in each pass or accessible point of the mountain* which may be situated on the boundary line ; and the Instructions given by the Experts to the assistants on January 1, 1894, for the delimitation of the dividing line in the Cordillera de los Andes direct this operation to be effected, when in said Cordillera the situation of the main chain has been investigated, in order to seek therein the loftiest crests that may divide the waters ; and further establishes that the assistants shall

mark the frontier line at their accessible points, making it pass between the slopes that descend on one side and the other. Although the Chilian Expert had himself signed these Instructions, he ignored them now altogether, and arbitrarily chose for erecting the landmarks, not the mountain passes of the main chain, but "plains or pampas," "swamps," "elbows of rivers," the "foot of table-lands," wherever they may happen to be, outside or inside the Cordillera, entirely against the conditions laid down for the line. He nevertheless stated to the Argentine Expert, in answer to a question, that the line he proposed fulfilled the provisions of the Treaty of 1881, Protocol of 1893, and Instructions of 1894.

The Argentine Expert immediately perceived the new difficulties that were about to spring up through his colleague's persistence in once more departing from the Treaties, a tendency which had repeatedly required the intervention of his Government, to avoid more serious conflicts. The time at which Señor Barros Arana revealed these intentions was the most trying for both countries. As these intentions assumed the character of extreme gravity, since it was proposed to discuss the interpretation of the boundary stipulated in 1881 and 1893, that is to say, as to whether this boundary was the *Cordillera de los Andes*, or was the continental divide, in order to submit at once this interpretation to arbitration, the Argentine Expert endeavoured to obtain from the Chilian Expert a categorical reply, *as to whether he considered that the line proposed by him was situated on the Cordillera de los Andes*. The object of this question was to know whether, in tracing the boundary, the Chilian Expert should respect that fundamental principle, invariably maintained during the protracted Argentine-Chilian negotiations.

It has been seen that diplomatic steps to arrange the international boundary brought about the Treaty of 1881. This Treaty had fixed as boundary the Cordillera de los Andes, the great mountain range parallel to the Pacific Ocean, as far as parallel 52° S., and stipulated that the frontier line was to run in that extent along the most elevated crests or ridges of the said range, which form its own watershed, and that it was to pass between the slopes on each side which are separated by the said watershed. The Agreement of the Governments of April 17, 1896, had limited arbitration to the differences that should arise between the Experts when fixing, in the Cordillera de los Andes, the boundary marks south of parallel 26° 52' 45", in case they could not be settled by joint accord of the

Governments; and this engagement ought to have put an end to the uncertainty and difficulties raised by the Chilian Expert in 1892.

The mission of the Experts was not to introduce modifications into the Treaties, nor could either of the two Governments support them if they had attempted to do so. The moment was then a serious one for the two Experts, as on the settlement of this frontier question would depend the future harmony, which it was most important should be placed on a solid basis. Since the year 1881, when it was declared that the boundary agreed upon in the Cordillera would be "at all events immovable between the two Republics," and as there existed such a conclusive and far-seeing stipulation, the task of settling the general frontier line was easy, if both Experts consulted, within the limits of their mission, the interests of the countries they represented; but if one of them failed in this responsibility and exceeded the duties entrusted to him, then the result must be serious, and *the frontier question would possibly be put fifty years back by failing to hold strictly to this binding Agreement.* Nevertheless, it was not to be expected that, in case of the Chilian Expert denying that the dividing line should be marked out in the Cordillera de los Andes, the Government of Chile would uphold him in this.

The Argentine Expert, desiring a clearer explanation of the statement of his colleague when presenting his proposals, which statement appeared to be diametrically opposed to the texts of the international Agreements which they were charged to carry out, before taking into consideration his proposal for a general line, informed him—

"That, before deciding upon the various points contained in his colleague's statement, he required some explanations as to the part which refers to the tracing of the line which said that: 'for the tracing of said line he had solely and exclusively followed the principle of demarcation established in Article 1 of the Treaty of 1881, a principle which must also be the invariable rule of proceeding of the Experts according to the Protocol of 1893.' He thinks it indispensable that it should be set forth in the Records of these Conferences that both Experts declare that the points of the general frontier line which they are about to propose, discuss and decide upon, *are situated in the Cordillera de los Andes*, thus fulfilling the provisions of Article 1 of the Treaty of 1881, of Articles 1 and 2 of the Protocol of 1893, and of Article 5 of the chapter Preliminary Operations of the Instructions for the demarcation *in the Cordillera de los Andes*, given by the Experts on January 1, 1894, and of the bases 1, 3 and 6 of the Agreement of 1896; and as regards the boundary in parallel 52°, the provisions of Article 2 of the Treaty of 1881, Article 2 of the Protocol of 1893 and bases 3 and 5 of the Agreement of 1896."

The Chilean Expert replied—

“That he had no difficulty in declaring that the tracing of the general line proposed by him is in accordance with the provisions of the Articles of the Treaties and Agreements quoted by the Argentine Expert.”

The Argentine Expert said—

“That the general frontier line which he would propose further on was situated in the central chain of the Cordillera de los Andes which is no other than that which contains the elevated crests referred to by the Treaty of 1881, and the main range of the Cordillera de los Andes mentioned in the Protocol of 1893.”

Only when these previous declarations of the Chilean Expert were made, which the Argentine Expert considered sufficient for the moment, *desirous of avoiding, as far as possible, difficulties* with Señor Barros Arana, he agreed that the line of the Chilean Expert should be recorded, notwithstanding his dissent as to its geographical situation.

It will suffice to say with reference to the Record of August 29, that both Experts decided not to enter into discussions, and that the Argentine Expert, not having ready on that day the general plan on the scale of one to a million similar to that which his colleague showed him, placed at the latter's disposal at his office, sectional sheets on a scale five times larger, asking at the same time for permission to examine the sectional sheets which had served for making the Chilean general plan; and he also proposed to exchange copies of the respective general plans, on which should be indicated—

“(a) The general line of points or stretches which of joint accord may have been fixed as the divisional line between the Argentine Republic and that of Chile.

“(b) The line of points or stretches regarding which there is no agreement, a fact which shall be made known to the Governments for the ulterior ends foreseen by the Treaties.”

At the same time the Argentine Expert proposed that—

“They shall draw up and submit to their Governments for their decision, conformably with the Agreement of 1896, special Records containing the line proposed by both Experts as divisional line in the Cordillera de los Andes between parallels 23° and $26^{\circ} 52' 45''$; proposed lines to comprise those rejected and those accepted in the full extension or in part of it, accompanying same with reproductions of the same maps which may contain the specification of the different lines. They shall likewise draw up a Record in which it shall

be set forth that the Experts have fulfilled the provisions of the latter part of Article 2 of the Protocol of 1893 and of the bases 3 and 6 of the Agreement of 1896, and the decision they may adopt. At the same time they shall exchange reproductions of the maps in which may have been traced the divisional lines, the adoption of which is to be proposed by them, should the case arise foreseen in said Protocol and Agreement. . . . In a special Record, the Experts shall determine the form and time for the joint Sub-Commissions to begin the material demarcation in detail on the ground, of the accepted points, in order to define the frontier line, *placing divisional landmarks in all the passes and accessible points of the mountains situated on said line*, and drawing up a Record of the operation, in which it shall be stated that they proceed to erect said landmarks by express order of the respective Experts."

Second Meeting.—The second meeting took place on September 1, 1898.

The Expert of the Argentine Republic stated :—

"1. That the general line which he proposes to his colleague *is wholly comprised within the Cordillera de los Andes.*

"2. That in its entire extent *it passes between the slopes which descend one side and the other of the main range.*

"3. That he considers *that said main range is constituted by the predominating edge of the principal and central chain of the Andes considered such by the first geographers of the world.*

"4. *That this principal chain is the most elevated, the most continued, with most uniform general direction, and its flanks shed the larger volume of waters, thus presenting the conditions established both by the Treaty of July 23, 1881, and by the Protocol of May 1, 1893, to constitute, with the crest line of its slopes, the general frontier line between the Argentine Republic and the Republic of Chile.*

"That according to the texts of paragraphs 12 and 15 of his Statement set forth in the Record of August 29 last, and to what had been decided at the meeting of the Experts held on May 1 of last year, he proposes to his colleague, in compliance with the provisions of base No. 1 of the Agreement of April 17, 1896, the following general boundary line in that part of the Cordillera de los Andes situated between parallels of lat. 23° and 26° 52' 45" S. He considers that said line strictly follows the terms of Article 1 of the Treaty of July 23, 1881, and of Articles 1 and 2 of the Protocol of May 1, 1893, and he declares that he projects it according to the *surveys made in said region of the Cordillera de los Andes* by the sixth Argentine Sub-Commission, which has carried out all the investigations referred to in Article 5 of the chapter of the Instructions issued by the Experts on January 1, 1894, *for the demarcation in the Cordillera de los Andes* in pursuance of the Instructions imparted to the joint Sub-Commission on February 17 of last year. That in proposing this line he has borne in mind the Treaty concluded by the Argentine Republic and the Republic of Bolivia on May 10, 1889, exchanged on May 17, 1893, with modifications introduced in the first Article, the Boundary Treaties between the Republic of Chile and the Republic of Bolivia on August 10, 1866, and on August 6, 1874, and the Record of the Commission entrusted to fix the boundaries between the Chilean and Bolivian territories, signed on February 10, 1870, in the Port of Antofagasta, by Messrs. Amado Pissis and Juan Maria Mujia.

"The general boundary line between parallels 23° and $26^{\circ} 52' 45''$, which he now proposes, is *wholly situated in the Cordillera de los Andes in its main range, constituted in said part of the same Cordillera by the line of high crests which really and effectually exists and which 'separated Chile from the high tableland or Puna Boliviana of Atacama,' and 'consecrated the traditional limit,' as declared by the Chilean Expert to my predecessor, the Expert of the Argentine Republic, Don Octavio Pico, in his note of January 18, 1892.*

"This general line shall start from the point in which parallel of lat. 23° S. crosses the edge or culminating line which separates the slopes of the main range of the Cordillera de los Andes, which in that part is the '*Real Cordillera de los Andes*,' and the '*High Cordillera de los Andes*,' as studied by the Chilean engineers Don Francisco San Roman and Don Santiago Muñoz."

It is unnecessary to reproduce here the points through which the line runs, as they will be mentioned further on. The Argentine Expert proposed that—

"Within the above indicated points, the assistants of the sixth Sub-Commission are to make the practical demarcation in detail, according to what is provided in Article 5 of the Instructions given by the Experts for the demarcation in the *Cordillera de los Andes* on January 1, 1894.

"The Chilean Expert replied that he would give, later on, his reasons for not at present discussing the line presented by the Argentine Expert between parallel 23° and Mount Juncal or Wheelwright, waiting before doing so for his colleague to finish the presentation of his general boundary line."

The Argentine proposal for the demarcation between parallels 23° and $26^{\circ} 52' 45''$ in fulfilment of the provisions in the Agreement of 1896, being thus terminated, the Argentine Expert again stated—

"1. That, in accordance with paragraph 13 of his statement set forth in the Record of August 29 last, and the Agreement arrived at in the meeting which took place on May 1 of last year, to carry out the provisions of the last part of Article 2 of the Protocol of May 1, 1893, and of Clause III. of the Agreement of April 17, 1896, the fifth Argentine Sub-Commission of demarcation had effected the surveys ordered by the Experts on April 28, 1897, to investigate if the case foreseen in said Protocol and Agreement had arisen, and with them to enable the Experts to comply with what is provided in said Covenants.

"2. That, in view of said surveys and the observations he has personally made on the ground, he declares that he has the firm conviction that, *in fact, the Cordillera de los Andes is found penetrating into the channels which really exist in the peninsular part of the south on nearing parallel 52°* , and that the waters of those channels wash coasts of lands which *do not belong to the Cordillera de los Andes, which lie to the WEST OF SAID CHANNELS.*

"3. That the geographical fact of the existence of plains to the east of the salt water channels situated *to the east of the Cordillera de los Andes*, had been verified in 1557 by Pilot Ladrillero; in 1830 by the British hydrographers Skyring and Kirke during the

expedition of the 'Beagle'; in 1877 by the Lieutenant of the Chilian Navy, J. T. Rogers, and the Chilian naturalist Enrique Ibar, and in 1885 by the Chilian civil engineer Alejandro Bertrand, *who says that it is shown in an irrefutable manner that in lat. 52° S. the Cordillera de los Andes sheds all the water from its slopes into the Pacific.*

"4. That he requires to know the opinion of the Chilian Expert on this point, so that, if both agree on same, they may proceed to fulfil what is ordered in said Protocol and Agreement."

The Chilian Expert said :—

"That, as regards the statement made by his colleague with reference to the Cordillera de los Andes penetrating into the channels of the Pacific in the vicinity of parallel 52°, he agrees with his appreciations in so far as they may apply to several elevated mountain regions of the Cordillera de los Andes; but not to the totality of same, because other branches of same extend over the continent toward the north of the estuary of Ultima Esperanza.

"He adds that he does not give to the expressed proposition the character of prior importance, because the survey of the ground made by the Chilian Commission to fix a divisional line leaving to Chile '*the coasts of said channels,*' leads him to the conclusion that the natural interior delimitation of said coasts is no other than the one of the hydrographic basin which empties into them; that this limit is at the same time the one which agrees best with the spirit of the Treaty of 1881; and that in consequence, he has included it in this form in the proposal of the general line presented to his colleague, in order that should he not accept same, it may be considered by the Governments, as the result of the surveys made by him, which are to serve as a basis for the resolution of the Arbitrator who is to decide on the divisional line in that region according to what is stipulated in the last part of the third clause of the Agreement of 1896."

The Argentine Expert having stated that in his opinion a separate Record on this subject should be presented to both Governments, the Chilian Expert reproduced in detail the line alluded to in the preceding paragraph.

The Expert of the Argentine Republic said that :—

"Considering that in the present case they must adopt as frontier line between the Argentine Republic and the Republic of Chile, a line leaving to Chile the coasts of the channels of the Pacific existing in the peninsular part of the south to the east of the Cordillera de los Andes according to what is provided in the Protocol of 1893, a line analogous to the one agreed upon by the Experts and approved by the respective Governments between Mount Dinero and Mount Aymond, as set forth in the Record of the fifth joint Sub-Commission, dated January 8 and April 15, 1896, and in that of the Experts dated April 28 and May 6, 1897, and January 22, 1898, he proposes that respective line."

To have entered into discussion with the Chilian Expert, and to have insisted upon the unfitting character of the line proposed by him as being

entirely opposed to the spirit and letter of Article 2 of the Protocol of 1893, would have been to aggravate alarm in Chile; and the Argentine Expert, for the moment, deemed it was more convenient to postpone the question in such a manner that the work might be continued. In consequence—

“both experts, in view of the divergences recorded in the present Statements, resolved to present to their respective Governments a copy of the present Record for the ulterior ends.”

At the same meeting a Resolution was adopted, according to which each Expert agreed for the future to place at the disposal of his colleague in their respective offices, all the general and detailed maps which he might possess, and which he had used in drawing up his proposed general line, so that he might make arrangements for their being consulted, copied or reproduced, in the form which he might consider the most convenient.

Third Meeting.—The third meeting took place on September 2, 1898, and it was then agreed that on the following day the Experts would exchange all the documents relating to the presentation of their lines, and that at the same time the minutes of proceedings in which presentations are recorded, should be drawn up.

Fourth Meeting.—At the fourth meeting, which was held on the date agreed upon (September 3, 1898), the Experts dealt with the line proposed by the Chilean Expert, between the parallels 23° and $26^{\circ} 52' 45''$ S. lat., and with that proposed by the Argentine Expert between parallels $26^{\circ} 52' 45''$ and 52° .

Referring to the first the Chilean Expert stated :—

“That he had taken into consideration the proposal of a general frontier line between the Republic of Chile and the Argentine Republic between parallels 23° and $26^{\circ} 52' 45''$ S. lat., made by the Argentine Expert in the Conference of September 1, and that he considers it convenient to make the following observations regarding the considerations upon which it had been based :—

“1. That the expression ‘traditional boundary,’ contained in the note of the undersigned dated January 18, 1892, expressly refers to the old boundary existing between Chile and Bolivia before the military occupation of the territory of the Puna de Atacama by Chile as a consequence of the war that broke out in 1879, a fact which had been formerly acknowledged by Expert Pico in the Conference of April 29, 1890.

“2. That he acknowledges that if the boundary which before that epoch separated Chile from the Bolivian Puna—say the western limit of the territory that went under said name—were now to be fixed, the line indicated would scarcely deviate from the one the undersigned would lay down in the greater part of its extent.

“ 3. That the Treaty concluded in 1893 between Bolivia and the Argentine Republic, mentioned by the Argentine Expert, allows a western boundary to separate both countries from parallel 23° to the extreme northern point of the boundary between Chile and the Argentine Republic, according to the Treaty of 1881.

“ 4. Finally, that a Chilean Law of July 12, 1888, has incorporated the territory of La Puna to that of Chile, and that while said Law remains in force the Chilean Expert *cannot either accept or propose any line which may be contrary to what said Law establishes.*

“ In view of these considerations, he thinks that his intervention in this matter must needs be limited for the moment by the course which the laws of the Republic trace, and wishing to satisfy the purposes of the Argentine Expert, so that a Record concerning this part of the boundary may be immediately presented to the respective Governments, he proceeds to enumerate (as follows) the points which form the eastern boundary of Chile between parallels 23° and $26^{\circ} 52' 45''$ as established by the Law of July 12, 1888.”

In reply to this statement, the Argentine Expert answered :—

“ That the Record of proceedings of the meeting which both Experts held on February 17 of last year provided in its first Article that ‘ the assistants of the joint Sub-Commission shall begin the operations of demarcation referred to in Clause 1 of the Agreement of April 17 of last year, adhering to the Instructions issued by the Experts to the Sub-Commissions of demarcation *in the Cordillera de los Andes* dated January 1, 1894, extending the work of the zone referred to in said clause to the whole region which in the opinion of the respective Experts may comprehend the line of demarcation.’

“ That consequently, the assistants of the sixth joint Sub-Commission have proceeded to execute the operations provided in the first base of the Agreement of April 17, 1896, fulfilling said Instructions, *in the mountainous region which is the Cordillera de los Andes*, and which formed the ‘ old boundary existing between Chile and Bolivia before the war which began in 1879.’

“ *That he cannot accept as part of the general boundary line, and, therefore as boundary between parallels 23° and $26^{\circ} 52' 45''$, according to the Treaties and Agreements in force, the line defined by the Chilean Expert, and that he cannot either enter into a discussion on same, because he considers that it is not included within the terms of the Treaty of 1881, Protocol of 1893, and Agreement of 1896.*

“ He declared likewise that the line proposed by the Chilean Expert is a political, and not a geographical line, such as that which they are entrusted to draw should be ; *and besides, that it is extraneous to the Cordillera de los Andes to which the above Treaties and Agreements refer.*”

By the line proposed, the Chilean Expert once more *abandoned the Cordillera de los Andes*, to which the boundary is restricted according to the Treaties, in order to carry the frontier to another chain recognised at all times as the Cordillera Real de Bolivia, *which never separated Chile from the Argentine Republic*, and in order to deviate it towards the pass in the Gap of San Francisco, *a point which is not situated in the Cordillera de los Andes, and which for that reason cannot serve*

as a frontier point; but the Argentine Expert, for the same reasons that led to his postponing any discussion concerning the boundary in the neighbourhood of parallel of lat. 52° S., agreed in the proceeding determined in the Record thus :—

“Both Experts, in view of the divergence of opinions recorded in the foregoing statements, have resolved to present to their respective Governments a copy of the present Record for ulterior ends.”

The Argentine Expert, for his part, presented his general boundary line between $26^{\circ} 52' 45''$ and the culminating point in the main chain of the Cordillera de los Andes, where the river Geikie rises in parallel $51^{\circ} 41'$. He dealt also with the question relating to the higher valley of the river Bio-Bio occupied by Chile in 1881, when that country and the Argentine Republic were engaged in the campaign against the Indians on the respective Andean slopes. The Chilian settlement in that valley was situated *to the east of the main mass of the Andean Cordillera*, ALTHOUGH TO THE WEST OF A BIFURCATION OF THE SAID CORDILLERA; but the Argentine Expert, bearing in mind the absence of any protest on the part of the Argentine Republic against the said occupation and the consequences that might entail any change of nationality of settlements in that district made with the consent of the country that considered itself to be the owner of the land, deemed it right and just to leave to Chile territories which, by the Protocol of 1893, might properly be considered as Argentine, thus affording a proof of his Government's amicable spirit, strong in their right and in the purity of their motives.

The line proposed by the Argentine Expert ended at Mounts Geikie, which “are situated in the line of elevated crests *or main chain of the Cordillera de los Andes.*”

“From Mounts Geikie the divisional line in the Cordillera de los Andes shall run along the same ridge up to the point which the respective Governments may fix as the end of said line, according to the provisions of the last part of Article 2 of the Protocol of May 1, 1893.

“Within the points and stretches which he has indicated, the joint Sub-Commissions shall make the demarcation in detail, in pursuance of the provisions of Article 5 of the Instructions issued by the Experts for the demarcation in the Cordillera de los Andes on January 1, 1894.”

3. AGREEMENT AND DIFFERENCES BETWEEN THE EXPERTS.

The respective general lines of the frontier having been submitted by each Expert, it was agreed that they should forward to their Governments the minutes in which were recorded the differences of opinion which had arisen between them when dealing with the sections of the frontier between parallels 23° and $26^{\circ} 52' 45''$ S. lat., and in the neighbourhood of parallel 52° S. lat. There only remained the decision as to the line situated to the south of parallel $26^{\circ} 52' 45''$ S. as far as parallel 52° S., or near it, and it is *in this part that there arose the greatest differences of opinion between the Experts, so much so that the conferences were suspended*, for reasons hereafter explained.

After the meetings a correspondence between the Experts followed, of which it is advisable that an extract should be placed before the Tribunal, *as it affords valuable evidence in the Argentine contention, and wholly confirms the conviction of the Argentine Expert that the greater portion of the Chilian line under discussion is not situated in the Cordillera de los Andes, where it should be in its entirety.*

The Chilian Expert having proposed that the Experts should meet on September 7, for the purpose of drawing up a list of all the points of agreement, and recording the portion of the boundary line about which they were in disagreement, the Argentine Expert prepared the said list, and sent to his colleague, on the 6th, a rough draft with the preamble which he considered appropriate for the Record determining the points on which both were in agreement. The draft preamble reads as follows :—

“Both Experts declare that the points and stretches in the Cordillera de los Andes, of which mention is made in the list contained in this Record, jointly prepared after comparison with their respective plans for a general line, *are accepted as points of the general frontier-line between the Argentine Republic and Chile, being considered as contained*: (1) in Article 1 of the Treaty of 1881 which says, ‘The boundary between the Argentine Republic and Chile as far as the parallel of latitude 52° S. is *the Cordillera de los Andes*, etc. (full text to be copied); (2) in Article 1 of the Protocol of May 1, 1893, which says, ‘Whereas Article 1,’ etc.; (3) in Article 2 of the said Protocol which says, ‘The undersigned,’ etc.; and (4) in Article 5 of the Instructions for the demarcation in the Cordillera de los Andes signed by the Experts on January 1, 1894, which says, ‘It having been provided,’ etc.”

These headings were intended to avoid subsequent misinterpretations of

this Record, and also to serve as evidence in connection with the differences of opinion when dealing with the rest of the line, especially as the international difficulties would be increased by the slightest indication that the dividing line could be withdrawn from the Cordillera de los Andes.

In place of this proposed joint declaration the Chilean Expert suggested to the Argentine Expert that each of them should express his own opinion concerning the boundary, and sent him a copy of what he should insert in the Record, and which reads as follows :—

“The Chilean Expert, for his part, states that, in approving of the boundary points named in the list, he does so in accordance with the letter and spirit of the existing Agreements, and that in consequence he must place the following facts on record. All the points on which both Experts are agreed, and which constitute the greater part of the frontier line between the two countries, *are located in the line of the water-divide*, this ‘geographical condition of the demarcation’ being *invariably respected*. In specifying these points, summits or peaks of much greater altitude than the line of the water-divide, and which rise on either side of it, have not been taken into account; nor have the very much broader, steeper and loftier lateral mountain chains which in various parts rise on the east of the chain on which the frontier line is traced, owing to the fact that the said lateral chains do not divide the waters. The Chilean Expert added that the demarcation in all the points upon which both of them agreed, actually confirms the definition which in accordance with the Treaties in force he gave in the Record of January 1, 1894, to the expression “*encadenamiento principal de los Andes*” (main chain of the Andes) mentioned in the Protocol of 1893.”

Señor Barros Arana proposed also the following paragraphs for the pending Record on the same section of boundary line agreed :—

“The Experts . . . agree in declaring as approved those points of the frontier line which are shown in the list inserted further on, by which the three sections of the boundary line, separately enumerated, are determined throughout their whole extent.

“Each of the two Experts declares that the entire number of points proposed by him, and those accepted by both, conform to those rules of demarcation, which in their opinion must be applied in view of the considerations upon which they have respectively based their propositions of the general lines in the Records of August 29 and September 3.

“The two Experts agree to prepare a common map of demarcation for the three sections of which, according to the present Record, the frontier line by common consent consists. The preparing of this plan devolves upon the secretaries of both Experts, who are from this moment instructed to this effect. . . .” (List follows.)

“At those points indicated in the preceding lists, and at all intermediate accessible parts, the mixed Sub-Commissions shall carry out on the ground itself the demarcation of the frontier line in the manner stated *in the final part of Article 5 of the Instructions given by the Experts on January 1, 1894.*

“In conformity with the provisions in the concluding part of the first Article of the Treaty of July 23, 1881, a Record in duplicate shall be drawn up from these Agreements, one certified copy of which shall be at once presented by each Expert to his respective Government for the purposes referred to in the said Article.”

Article 5 of the Instructions, referred to by Señor Barros Arana, states :—

“It having been provided in Article 1 of the Protocol of May 1 last that the Experts and the Sub-Commissions who are to operate in the Cordillera de los Andes shall have as an invariable rule of their proceedings the principle established in the first part of Article 1 of the Treaty of 1881, said Sub-Commissions shall investigate the situation in said Cordillera of the main chain of the Andes, *in order to seek, in same, the most elevated crests that may divide the waters*, and shall mark the frontier line on their accessible parts, making it pass between the slopes which descend one side and the other.”

By omitting the first part of the Article transcribed, as the Chilian Expert desired, there were suppressed “the Cordillera de los Andes,” its “main chain” and its “most elevated crests,” and there only remained as a guide for the assistants to enable them to mark out the frontier line, the watershed, which—if the orographical features were thus arbitrarily set aside—could be sought both on the Cordillera de los Andes and outside of it. By these means it was proposed to indirectly attain the location of the continental *divortium aquarum* which, in the opinion of the Chilian Expert, ought to replace the immovable boundary of the Cordillera de los Andes. As far as possible the Chilian Expert methodically avoided mention of the words Cordillera de los Andes in his Records or Minutes.

The Chilian Expert, on rejecting the preamble proposed by the Argentine Expert, said :—

“I see no reason for repeating statements already made, which, however, do not prevent the Argentine Expert, if he deems it necessary, from making on his own account such statements as appear in the draft he sent to me ;” but added that, “if this course is taken, I should be placed under the necessity of giving a summary of the grounds of my opinion, and my reasons for approving of the points on which both Experts agree.” . . . “I would only take part in the meeting (he also said) if it is held with the purpose of signing a Record in which the individual statements were made in such form as each of us respectively deemed suitable.”

The Argentine Expert replied immediately, that, as to the preamble of the Records on points of agreement and disagreement in the general boundary line, *he considered it indispensable that the Experts should specify therein that in their determinations with regard to the line, they have proceeded in conformity with*

the Treaties, Agreements and Instructions which guided the work of demarcation, and also that the Articles of said documents relating thereto should be incorporated in their entirety in the Records ; and that if the Chilian Expert wished to add to these Records other Articles, or the entire text of these Agreements, he was willing to agree with him, as he believed that in proceedings of this nature their decision should be made with the complete clearness he proposed : reproducing the text of the Treaty of 1881, the Protocol of 1893 and the "Instructions for the demarcation in the Cordillera de los Andes," as signed by the Argentine Expert, Señor Quirno Costa, and Señor Barros Arana, without considering the reservations made by the latter. The Argentine Expert added that in declaring that the Experts were guided by the above-mentioned Treaty, Protocol and Instructions they were honourably fulfilling their office ; and they should give no occasion for the feeling of uncertainty and excitement in the countries they were representing on the question.

The Chilian Expert insisted that *he considered such a statement unnecessary ; to which the Argentine Expert answered that he would not be able to sign the Records while they disagreed as to having inserted in them the Articles of the Treaty of 1881, the Protocol of 1893 and the Instructions for the demarcation in the Cordillera de los Andes ; and he again invited his colleague to a meeting in order to proceed to discharge his mission.*

The Chilian Expert *declined the meeting, declaring : that, in his opinion, the exclusive object of such a meeting being to settle by name the points of agreement and disagreement in their respective boundary line, he thought it useless that this should be done while they were not agreed as to the form in which the Record of the meeting should be drawn up ; that if the meeting did not take place on the day agreed upon, it was solely because the Argentine Expert had insisted that statements which he drew up, and which he (the Chilian Expert) did not consider necessary or suitable in the form proposed, should be inserted in the Record as issued by both Experts ; that he had proposed to his colleague a form of Record in which each one of them, while upholding the statement made by him in the Records in which their respective propositions were specified, should limit himself to enumerating the points of agreement and disagreement in order to make the same known to their Governments ; that the Argentine Expert might, on his part, insert in the pending Record the joint declaration, asking, at the same time, the Chilian Expert to adhere to it ; that if this were done, he, in his turn, would explain the reason for not concurring in said declaration ; that the Minister for Foreign*

Affairs having verbally informed him that, through the Minister Plenipotentiary of the Argentine Republic, he had learned that the Argentine Expert would accept a form of Record in which both Experts should declare that the boundary proposed by them was in complete agreement "*with the Treaties and other international Conventions*"—which should, moreover, be inserted in their entirety—he replied to the Minister for Foreign Affairs that, although he did not see the object of including these, he had no objection to accepting it as requested by the Argentine Expert; that he considered that the difficulties raised with regard to this particular point might easily be solved by a Record which he had proposed before, or by means of a Record in which each of the Experts should state his own opinion; and that if the Argentine Expert should not accept either of these propositions, he should bring before the Chilean Government the facts which already appear in the Records of August 29 and September 3, which in his opinion fully suffice to acquaint the Ministers with the differences existing between the two proposals for the general boundary line.

In acknowledging the receipt of this communication, the Argentine Expert answered that he had no objection to proceed with the drawing up of the Record in the form indicated by the Argentine Minister Plenipotentiary to the Minister for Foreign Affairs of Chile, that is to say, that it be stated therein that, at his request, both Experts declare that the lines proposed by each of them *are situated in the Cordillera de los Andes*, and comply with the provisions of all the Treaties and other international Conventions, which shall also be inserted in their entirety in the said Record. The Chilean Expert replied that *he did not agree with the Record in that form*, and addressed a letter to Señor Moreno, which it is necessary to reproduce in full in order that the Tribunal may understand *why the Argentine Government, from the very first*, have asked Her Britannic Majesty's Government that the Surveying Commission to be appointed should proceed to the ground where the differences between the Experts have arisen, this being—as stipulated in the Agreement of April 17, 1896,—a step which must precede the settlement of these differences.*

* This note, dated Santiago, September 9, 1898, says: "In reply to your communication of to-day's date, which I have just received, I must point out that the formula of the Record therein set down by you is not the same as that of which I informed you I should not object to accepting, in the note to which yours is an answer. According to the latter, both Experts were, at your request, to confine themselves to stating 'that the lines recommended by them are in conformity with all the Treaties and other international Conventions, which should, moreover, be inserted in their entirety.'"

This letter clearly shows the Chilean Expert's *refusal to state that the Boundary proposed is all situated in the Cordillera de los Andes*; he thought that it was not advisable for these words to appear in the Records, and the Press friendly to him put into the mouths of his employees expressions which might lead one to think that the inclusion of those words was prejudicial to the interests he defended. All this demonstrated to the Argentine Expert the expediency of not acceding in any case to the elimination of the words proposed for the heading of the Records; and he therefore replied to Señor Barros Arana, expressing his profound astonishment at the refusal to state that the lines recommended are "*situated in the Cordillera de los Andes.*" All the Records upon the erection of landmarks on the boundary line, drawn by the assistants of the mixed Sub-Commissions and approved by the Experts, establish that the points at which these landmarks are located are to be found *in the Cordillera de los Andes*; nevertheless the Chilean Expert, *under whose orders the Chilean Sub-Commissions are, did not deem it necessary, when deciding with the Argentine Expert upon the demarcation of 1500 kilometres of the general line, to insert those words, which are most important, as it is within the Cordillera de los Andes that the boundary between the two nations must be fixed.* In view of this, the Argentine Expert again invited his colleague to include the words in question in the pending Records in order that their deliberations upon the general frontier line might be brought to an end, and that without further delay all the facts might be put before their Governments.

The Chilean Expert's answer showed once more a marked resistance to proceed as proposed. *It is true that the words which the Argentine Expert deemed it indispensable to insert in the Records of agreements and disagreements would have been the condemnation beforehand of his boundary line by his own signature, and to this reason may be ascribed the vagueness and confusion in his reply.* He pretended to have always sought, with the most devoted zeal, the strict fulfilment of the Boundary Treaties, but without wishing to acknowledge at the same time the fundamental principle stipulated in them, *viz. that the boundary must be within the Cordillera de los Andes,* and that it must be carried along the *main chain of the Andes.* According to his views the line is independent of the Andean Cordillera, and is formed by the *continental divide*, which he pretends was that which the surveyors of the two countries had taken into account when they erected the landmarks placed in 1894, 1895 and 1896—an assertion that, as far as the Argentine surveyors are concerned, is completely

erroneous. Equally erroneous was his assertion that it had been agreed to simply state in the pending Record that the lines presented by the Experts were in accordance with all the Treaties and other International Conventions, and to insert therein the said documents in their entirety; and also that, whilst on his part he was prepared to sign the Record in that form, the Argentine Expert proposed to introduce an addendum modifying what had been agreed to. The Argentine Expert had neither accepted the proceeding in the form stated by Señor Barros Arana, nor had he introduced an addendum modifying that which had been agreed upon with the Chilean Minister for Foreign Affairs.

The Experts, as Señor Barros Arana had often declared, possessed powers of their own, and the said Minister had misunderstood the Argentine Minister Plenipotentiary, who merely transmitted the clear and decisive opinion of the Argentine Expert to the effect that, whatever form was agreed upon regarding the pending Record, it was indispensable that they should insert in it the *declaration that the proposed lines were situated within their whole length in the Cordillera de los Andes.*

The Argentine Expert realised his responsibility in connection with this matter, and the duties imposed on him as the Argentine Representative for the execution of the Treaties. He was to fix a frontier in the Cordillera exclusively: all projects of frontier out of the Cordillera were impossible for the Argentine Republic, as being extraneous to the provisions of the Treaties, and consequently outside the scope of the only possible arbitration upon differences of opinion that might arise on the location of points or lines in the Cordillera.

The Chilean Expert concluded his last note, just referred to, by announcing to his colleague that he was submitting to his Government an account of the events that had taken place in connection with the pending Records.

Señor Moreno deemed it necessary to return a detailed reply to Señor Barros Arana, which is inserted here, as it is important in order to obtain a complete knowledge of the facts which preceded the *submitting of the differences of opinion between the Experts to their respective Governments.**

* The note, dated September 11, 1898, is as follows:—"I have received your communication No. 119, of yesterday's date, which I am answering at the length demanded by its contents.

"You say that you have never in any way refused to recognise any principle or statement whatsoever appearing in the Boundary Treaties, and that you have never ceased striving to secure their scrupulous fulfilment; furthermore, that the delays created in the extending and drawing up of the Record in question,

The solution by the Experts of the demarcation of the general frontier line did not take place—notwithstanding the fact that the two lines proposed coincided for over fifteen degrees of latitude—*owing to the refusal of the Chilean Expert to state that his line was situated in the Cordillera de los Andes*, within which it was in any case to be fixed.

far from being due to the cause to which I ascribe them, i.e. *your failing to conform in your statements with the stipulations of the said Agreements*, are in reality only a clear and self-evident proof that you are following the said Treaties scrupulously, and therefore, as I attribute to you views and intentions which you never have had, the reasons for the astonishment which I manifest in my communication do not exist.

“Your persistence in refusing to allow it to be stated in the Record approving more than 1500 kilometres of the general boundary line, *that said line is situated in the Cordillera de los Andes*, deepens the astonishment to which you allude, for your refusal to repeat in this case what you asserted, as Chilean Expert, upon every occasion in which both Experts agreed to the locating boundary marks—which invariably appears in the minutes drawn up for this purpose—*cannot be explained otherwise than by the fact that you have convinced yourself from the last surveys which have been concluded in the Cordillera and its vicinity*, of what I have so often declared to you: namely, *that the continental divide—which you erroneously say*, in opposition to the principle established in the first Article of the Treaty of 1881, *forms the boundary between the two countries*—IS NOT SITUATED IN ITS ENTIRETY IN THE CORDILLERA DE LOS ANDES, and that as it should again appear in the Records which must bear your signature, *that the boundary agreed upon is to be found in the Cordillera de los Andes*, your theory is exploded, and it becomes impossible for you to continue upholding it. But, if I accept this explanation, I should find myself compelled to believe that you have knowingly departed from complying with what we, through binding agreements, were directed to execute.

“You also say that when there was under consideration the drawing up of the Record in which the boundary points upon which agreement had been arrived at, and those upon which there was difference of opinion were to be enumerated, I wished to have the same preceded by statements to which both of our signatures should be appended, and which, although they reproduce certain Articles of the Treaties, did not clearly reflect the spirit and compass of the same, since I at the same time set aside others in which the geographical condition of the demarcation as laid down in the said Agreements was most clearly expressed. I am obliged to remind you that a Record of part of the frontier line then being in question (I say ‘a Record’ because you will remember that it was arranged that two should be drawn up: one setting forth the points upon which we were agreed concerning the frontier, and the other recording those upon which we differed), it was not the moment to mention Article 3 of the Protocol of 1893, and Article 6 of the Experts’ Instructions for the demarcation in the Cordillera de los Andes, as these Articles refer to cases of differences of opinion in the tracing of the boundary line.

“Furthermore, in making this charge against me, you have forgotten that in my note of the 7th instant, I stated that if you wished to add to these Records other Articles, or the entire text of said Agreements, I would at once agree to it, believing as I do that in proceeding in our resolutions with absolute clearness, we are honourably fulfilling our trust, nor shall we give occasion for doubts such as those which have caused the present uncertainties in the countries which we represent in this matter. I, therefore, proposed reproducing the texts of the Treaty of 1881, the Protocol of 1893, and the Instructions for the work of demarcation in the Cordillera de los Andes given by the Experts on January 1, 1894, and by stating that we were guided by the said Treaties, Protocol and Instructions.

“This will prove to you that I never have had any intention of suppressing or half quoting Articles of the Treaties, Agreements and Instructions regulating the demarcation, and I feel compelled to state in my turn, that if either of us has had this intention it is you, who proposed to me that the Boundary Sub-Commissions should effect that demarcation of the approved line on the ground itself, as provided for *at the final part of Article 5 of the Instructions* given by the Experts, January 1, 1894.

“This Article is as follows:—‘It having been provided in Article 1 of the Protocol of May 1 last that the Experts and the Sub-Commissions, who are to operate in the Cordillera de los Andes, shall have as an invariable rule of their proceedings the principle established in the first part of Article 1 of the Treaty

The Argentine Expert informed the Minister Plenipotentiary of his country of the existing condition of affairs, stating that, for his part, *he would not renew the meetings until it was expressly laid down that the boundary to be traced by the Experts in fulfilment of the Treaties in force must be sought within the Cordillera de los Andes, which is the immovable boundary separating the Argentine Republic*

of 1881, said Sub-Commissions shall investigate the situation, in said Cordillera, of the main chain of the Andes in order to seek in same *the most elevated crests that may divide the waters, and shall mark the frontier line on their accessible parts, making it pass between the slopes which descend one side and the other.*

"And you propose that the Sub-Commissions should have in view only that portion which I have underlined, thereby departing from the stipulations contained in the Treaty of 1881 and the Protocol of 1893.

"You add that, desirous of avoiding all difficulty, you proposed to me the adoption of either of the two following alternatives:—(1) The drawing up of a Record wherein, while referring to the statements set forth by each Expert when presenting his respective project of boundary line, the list of the places about which an agreement had been come to, and those concerning which there were differences of opinion, be only inserted. (2) A Record in which each Expert should set forth his reasons for agreement or disagreement, recognising the right of each party to insert therein, wholly or in part, the Treaties and other Agreements, or antecedents governing the matter.

"Moreover, you thought it necessary, in the event of a Record containing remarks signed by both of us being agreed upon, that it should be stated that the points upon which we were agreed were situated in the *principal chain of the Andes that may divide the waters*—a formula which, according to you, *sums up the letter and the spirit of the Treaties.*

"As regards the first alternative, I must point out to you, that I would have signed a Record in this form only on condition that *both of us* had declared in the preamble, *that the approved boundary was situated in the Cordillera de los Andes*; and as regards the Record concerning the points upon which we differed, I should have declared in it that *a large number of the points proposed by you were not situated in said Cordillera.* In the second case, I should have been willing to draw up a Record, to be preceded by a statement that the approved points *were situated in the Cordillera de los Andes and in its principal chain that may divide the waters,* and I should have set forth what I understood as the principal chain of the Cordillera that may divide the waters, and the grounds which I have for agreeing to accept as part of the frontier line points 236 to 244, which are situated outside of said chain.

"You further say that, after having agreed, as set forth in your Note No. 117, to state simply in the Record under consideration that the lines recommended by both Experts comply with all the Treaties and other International Conventions, and to insert the said documents in it in their entirety, while you, for your part, were disposed to sign the Record in the said form, I subsequently proposed to *introduce an addition* which modified what had been agreed upon: I must inform you first of all that you are in error, since such an Agreement did not exist. I have invariably said that in the Records which we, the Experts, were to sign, I wished to have inserted all the Articles of the Treaties and other Agreements, but in no case have I consented to omit the words *Cordillera de los Andes.*

"*I cannot understand how the words 'Cordillera de los Andes' signify 'a modification of what had been agreed upon.'*

"The first Article of the 1881 Treaty reads:—The boundary between the Argentine Republic and Chile from north to south as far as the parallel of latitude 52° S. is '*the Cordillera de los Andes.*' You consider that to expressly mention this boundary in the Records is '*a modification of what had been agreed upon,*' and add that you believe it unnecessary to enter into a discussion as to the propriety of this addition, *as it will tend to uselessly protract this debate.* You must remember that in the communications which I have addressed to you up till today, and especially in my Notes of May 12 and June 26 of this year, whenever points of the demarcation have been under consideration *I have always insisted that the boundary between the Argentine Republic and Chile is situated in the Cordillera de los Andes.*

"In the first of these notes I stated that the work of demarcation *must take place in the Cordillera de los Andes,* and that while the Treaty of 1881 and the Protocol of 1893 *were in force,* NEITHER THE SUB-COMMISSIONS

from that of Chile, and appending three Records:—No. 1 being the enumeration of the points and stretches of the Cordillera in which the lines of the Chilean Expert and his own coincide, and which should be accepted in the same way as the points of the frontier in the Cordillera de los Andes have been approved, from 1895 down to the present time; No. 2 contained the points and stretches which in his opinion are not situated in the main chain of the Cordillera de los Andes, formed by the central cordon of the Cordillera, which is the highest, the longest, the most uniform in its general direction, the slopes of which shed the greatest quantity of water, and whose crests have always been considered as forming a boundary line between the Argentine Republic and that of Chile; No. 3

NOR THE EXPERTS NOR THE GOVERNMENTS OF THE ARGENTINE AND CHILIAN REPUBLICS MIGHT EXTEND SUCH WORK OR CAUSE IT TO BE MADE OUTSIDE OF IT; and in the second, that the Argentine Sub-Commissions would always take into account whatever proposal might be made to them as to places situated in the Cordillera de los Andes, BUT NEVER AS TO PLACES SITUATED OUTSIDE SAID CORDILLERA; and I added that each one of us should supply in the meetings to be held in the month of August last, the data which he had collected for the purpose of forming a definite idea of that mountainous region to be considered as 'THE CORDILLERA DE LOS ANDES WHICH CONSTITUTES THE IMMOVABLE BOUNDARY.'

"I considered it necessary to state all this to you because of your persistence in maintaining that the boundary between the Argentine Republic and Chile is to be found in the Continental divide, a pretension which you still appear to sustain when refusing to include in the Records under consideration, in the form proposed by me, the term 'Cordillera de los Andes,' a pretension which it is not possible for me to admit, because it is completely extraneous to the clauses of the Treaties in force, and a pretension which you again affirm, in proposing to me as situated on the boundary line a series of points which for the greater part, as I informed you, are outside of the Cordillera de los Andes, and, therefore, outside the line which we, the Experts, in accordance with the arrangement entered into on May 1, 1897, were to investigate in detail and decide upon, so as to carry out the instructions given us in the International Agreements. Only your conviction that the said points are situated outside the Cordillera de los Andes would explain your great aversion for that immovable boundary.

"You conclude by saying that, moreover, conformably with your announcement to me in your Note No. 117, you are bringing the facts connected with the case mentioned therein to the notice of your Government.

"I reserve my opinion on proceedings so extraneous to our duties as demarcators, which cause the suspension of all the tracing of the frontier, not fulfilling what we are directed by the Treaties to fulfil, nor even what we agreed to do in our Agreement of May 1, 1897—as is shown in the Record of August 29 last—leaving, besides, without definite determination from the Experts, that part of the boundary line in which our propositions coincided, and without formulating the differences of opinion which might exist between us after a discussion of the points situated in the Cordillera de los Andes upon which we do not agree, in order that they might be brought before our respective Governments for decision, as provided for in the Article 2 of the Agreement of April 17, 1896.

"With regard to the points set down in your list, and which my personal acquaintance with the territory leads me to believe are not situated in the Cordillera de los Andes, it would have been impossible for me, while you failed to state that in your opinion they were situated in the Cordillera de los Andes, to discuss them as forming part of the frontier line between the Argentine and the Chilean Republics.

"In conclusion, I must say that I, for my part, hold you responsible for all the difficulties which your decision may occasion, and that in order that the matter may be settled, I shall in my turn bring before the Argentine Minister Plenipotentiary all the Records and facts leading up to, and in connection with, the points upon which we have been deliberating since August 25 last."

contained the enumeration of the points and stretches proposed by the Chilean Expert in his project for a general line, and which in the opinion of the Argentine Expert are not situated in the Cordillera de los Andes, and therefore could not be taken into consideration during the discussion of the respective lines because, as Expert, it is not his duty to deal with points which are not comprised in the terms of the Treaty of 1881 and the Protocol of 1893.

The Chilean Expert, in his turn, proceeded in the same manner towards his Government, addressing a note in which there is a paragraph referring to his refusal to agree that the Cordillera should be mentioned, which suffices to demonstrate the setting aside of the binding Agreements between the two nations, on the part of the official charged with their fulfilment on behalf of Chile.

Señor Barros Arana stated to the Minister of Foreign Affairs of Chile that the Argentine Expert had insisted that both Experts should declare that the lines which each of them presented *were situated* in the Cordillera de los Andes, and that they comply with all the provisions of all the Treaties and other International Conventions, which shall also be wholly inserted in the said Records.

"You will not," added Señor Barros Arana, "fail to notice that the acceptance by me of the phrase I have underlined ('*were situated in the Cordillera de los Andes*'), which does not correspond to what was agreed to, would have necessitated an elucidation respecting what each Expert understood by the Cordillera de los Andes, and might be the origin of an endless and fruitless discussion. I merely observed, in a fresh note to my colleague, that the new formula proposed by him was not the one we had agreed to accept; and as he again insisted, and even manifested 'profound astonishment' at my refusing to accept modifications on what had been agreed to, I addressed to him my official communication No. 119, the contents of which I have already communicated to you, in which I have informed him that I was laying before you all the facts relative to this question."

The Chilean Expert thus gave a futile explanation in support of his refusal. Definitions as to what was to be understood by the "Cordillera de los Andes" were not necessary at that moment, *since the Arbitrator appointed to decide upon the differences of opinion which might arise between the Experts was the competent authority to define the boundaries of the main chain when pronouncing upon each one of those differences.* The Argentine Expert only required it to be declared that the line proposed had been planned *within the Cordillera de los Andes* as a necessary condition without the fulfilment of which it was not possible for him to take into consideration his colleague's line, which he was convinced *was, for nearly*

one-half of its length, situated outside the Cordillera de los Andes. To deal with it would have been to admit the possibility of ignoring the Treaty of 1881, and submitting to arbitration questions for the solution of which it had not been constituted, and which directly affected the sovereignty of his country.

The best justification for the proceedings of the Argentine Expert is found in the part of the Chilian Expert's Report to his Government, which says :—

“I must call your attention to the following important facts:—(1) That this long section of frontier line constitutes in its whole extent, *the general divide of the South American continent, or the continental divortia aquarum*. (2) That said line is not a line of lofty summits in the sense of containing the *most elevated peaks* of the Cordilleras, but solely in the sense of constituting the *culminating line of the Continent*, which serves as the edge or ridge of separation between the springs, streams and declivities which descend on one side and the other to form the *Chilian rivers on one side and the Argentine rivers on the other*. In proof of my statement, I append a list No. 1 of the summits situated in the watershed, as well as all those situated on one or the other side of that line. (3) *That neither is the said line the crest of a main chain in the orographical meaning of this expression, but only in the hydrological sense of presenting a succession of crests, depressions and any kind of features of the ground, the continuity of which consists in the fact that it is not cut at any part by any watercourse, great or small. This fact can be verified by an examination of the general map made in this office to trace the line of demarcation, on which it is seen that the principal blocks of the Cordillera from parallel 27° to parallel 37° S. lat. are situated in Argentine territory.*”

Thus, *the Cordillera de los Andes as a boundary is substituted by the continental divide*. When this continental divide occurs in the main chain of the Cordillera de los Andes, the latter is the boundary, and only in that case. Señor Barros Arana stated to his Government that the general map made in his office to trace the line of demarcation *showed that the principal blocks of the Cordillera, from parallel 27° to parallel 37° S. lat., were situated in Argentine territory, which is erroneous* : and as he said this for a length of about ten degrees of latitude, he left out the fifteen other degrees between parallels 37° and 52° S. lat., in which *the Chilian line passes in nearly all the proposed points through the plains far to the east of the mountains*. The Tribunal, when studying the differences, will examine all the evidence connected with the delimitation, and will observe that though Señor Barros Arana in the Report to the Minister for Foreign Affairs of Chile mentions the word *Cordillera* only when dealing with the region *between parallels 27° to 37° S. lat.*, he could have done so up to parallel 40° S. lat. in the portion where the lines of the two Experts coincided without interruption. The Tribunal will also observe that, regarding the remainder of the line, he avoided

any allusion to the *Cordillera*, as if he knew that the continental divide was not concurrent with it, notwithstanding his ulterior and clear declarations inserted in the Record of September 22, 1898.

By these proceedings, Señor Barros Arana sought to annul the Treaty of 1881, the Protocol of 1893, and the Agreement of 1896. This Agreement stipulates that Her Britannic Majesty's Government, having once surveyed the ground by the Commission to be appointed, shall decide those differences that should arise between the Experts when placing the landmarks in the *Cordillera de los Andes*, and which could not be settled by the Governments of Argentina and Chile. The two Governments by this stipulation put an end to the theories of the Chilean Expert in regard to the boundary, since, as this boundary was *immovable*, differences could only arise in the selection of geographical points. Therefore only after a survey of the ground could the Arbitrator decide upon them. But the Chilean Expert, knowing the impossibility of sustaining his line once the ground was known to the Arbitrator, considered it sufficient that his theoretical opinions on the boundary should be inserted in the Records to be communicated to the Chilean Government in order that the procedure agreed upon in 1896, and accepted by Her Britannic Majesty's Government, might be altered. But to this his Government did not agree.

It will be seen in the next chapter, that the Chilean Minister for Foreign Affairs declared to the Minister Plenipotentiary of the Argentine Republic that the Expert Señor Barros Arana had informed him *that the whole of his line was situated within the Cordillera de los Andes, a condition demanded by the Argentine Government previous to the consideration of the differences that had arisen between the Experts so that they might be placed before the Arbitrator*, in fulfilment of the Agreement of April 17, 1896. It was only after that declaration, and only by the intervention of his Government, that the Chilean Expert decided to state in a Record signed on October 1, 1898, that the points where both lines *coincided are to be found in the Cordillera de los Andes, and that consequently they were parts of the boundary between the Argentine Republic and the Republic of Chile.**

The differences of opinion were presented in this form, because the

* The Chilean Expert sent another communication to his Government, endeavouring to report the differences that had arisen in dealing with the general line between parallels $26^{\circ} 52' 45''$ and 52° S. lat.; but this Report will be dealt with in the proper place; *it will be only said here that it does not mention a single point of the Argentine line that it considers situated outside the Cordillera de los Andes, while the Argentine Expert maintains that this is the case concerning nearly half the Chilean line.*

Government of Chile obtained from their Expert, as might have been expected, the declaration which he did not think fit to make to his colleague—but without which it would have been impossible for the Argentine Government to deal with points which the Argentine Expert had declared to be completely foreign to the Treaties. It only remained now to comply with the last rule of the procedure agreed upon, i.e. if the differences that had arisen on fixing the points of the frontier *within the Cordillera de los Andes were not settled* they would be submitted to the British Government, and their just award would decide who was right. This is what has been done.

U. C. BERKELEY LIBRARIES



C041203034

